LIBRARY OF CONGRESS
28.678
APR 30 1894
SMITHSONIAN DEPOSIT

THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXIII.—NO. 17. NEW YORK, APRIL 28, 1894. WHOLE NUMBER 1043.

Trade Topics.

Water Supply.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY W. H. WESTON.

A few years ago the writer was connected with a concern putting in a system of water supply. There being no chance of supply by pond or river within easy distance, the only alternative was to take water from driven wells. These turned out to be a good investment, as they have been in a great many other places. The advantages of such a water supply are often superior to those of a surface stream or pond. A stream is subject to dry seasons and decreased flow and often muddy, impure water, while a pond may be liable to the same trouble, often to a more serious degree than in the running water.

A number of springs within a radius of a half mile indicated the existence of a considerable quantity of water in the lower strata; these springs always flowed steadily and continually and gave very pure water. There is nothing about the contour of the country in the immediate vicinity to indicate such a supply, yet it exists to quite a degree. It is thought by some that the water comes through by filtration from the ocean, which is not far distant. And it may have its origin there, or it may come from far back in the country. The supply is not affected by occasional heavy rains, and if it comes from the interior it probably has its source many miles back or takes in a large area of country, and the water works its way slowly to the springs. The whole section of low land for miles around is covered by a bed of clay from 20 to 40 feet thick, and the water is below this at various depths.

There is another system of driven wells about four miles back from this. The pipes are of the same size and are driven to about the same depth, giving about the same amount of water from one-half as many wells. Pumping from these does not seem to affect the supply at the others, and the water is very much softer, thus tending to show that the immediate supply of the two is not from the same source. Another point is that the wells at the four mile limit are very quickly affected by rains and increase in flow to a marked degree. There being quite an extended watershed at this place it seems evident that a great part of the supply of the wells comes from surface water filtering through from the immediate shed area, which is quite hilly on all sides.

Considering all of the facts, it seems probable that the supply at the wells to be described may come from the ocean. The strongest reason for so thinking is the fact that the water is harder and of different quality than that of the others; that it is not appreciably affected by rains; that there is no extended watershed in the vicinity, and that the whole area of surface is so covered by the clay strata that the surface water would run to the creeks and not filtrate to the strata below the clay. The bottom of the wells being on an average about 50 feet below tidewater, gives quite a head if there is any chance for filtration from this source. When construction for the supply was begun a large well was started 35 feet in diameter, to be sunk through the clay bed; but it was finally decided to stop digging at a depth of 20 feet, there being evidently no advantage to be gained by making it any deeper. The whole of the material excavated from within 2 feet of the top to the bottom was clear, yellow clay, sticky and tenacious. A gang of about twenty-five laborers was put onto the work, and when a depth was reached where the clay could not be wheeled out in barrows it was hoisted. When about 8 feet down the circumference was trimmed off perpendicularly and smooth and to as near a circle as possible. The shaft was also leveled and smoothed at the bottom for about 4 feet from the wall all the way around. Then a solid curb of timber was built of 2 inch plank sawn into segments and spiked flat upon one another until the whole was 4 feet thick vertically, the pieces overlapping and breaking joints, so as to form as strong and flexible a mass as possible. About 8,000 feet of spruce were used in making the curb, and the cost was about $150, including the sawing of the lumber into segments.

The curb was built up in position at the bottom of the excavation, and of such diameter as to leave no space practically between its outer circumference and the face of the clay wall. Next, brickwork was started on the top of the curb and carried up equally over its whole length. Hard burnt brick was used and laid in cement. The wall was made 12 inches thick and was built up above the surface of the ground somewhat so as to secure sufficient weight to sink it as the work progressed. This being done the excavation at the bottom of the well was started again, and the clay was carefully dug out from under the curb, precautions being taken to face off the clay at the back of the curb as near the same diameter and as smooth and vertical as possible. As this removal of the material from under the curb progressed the weight of the brickwork settled it, the laying of the brick continuing in proportion to the sinking. If there was a tendency to a hang-up from friction between the curb and brickwork and the clay walls, water was forced down between them, thus moistening the surface and diminishing the friction so as to admit of the settling. Fifty thousand bricks were used in the well and cost in place about $17 per 1,000. In this way the well was completed to a depth of 20 feet, the brick wall being built to a height of 3 feet above the surface of the ground. Next a dozen pipes, varying in size from 3 to 6 inches diameter, were driven at the bottom of the well. These went down about 25 feet below the bottom, penetrating the gravel strata, and after being pumped clear of sand, &c., they flowed very freely. The supply per twenty-four hours was about 200,000 gallons. The actual cost of excavating the 700 cubic yards of clay was about 40 cents per yard. Subsequently another well of somewhat smaller diameter and depth was built in the same way as the first, and about 100 feet from it. This brought the supply up to nearly 400,000 gallons. After completion the wells were covered by wooden roofs, with ventilators. The supply not being as great as was wanted, the writer suggested driving a line of wells at a point about 400 feet distant. Eventually the land was taken and a line of 2½ inch pipes was driven. About forty of these were sunk to a depth of 40 to 60 feet, going through the clay bed, then into sand and then into the gravel strata. The line of wells extended over a length of about 200 feet. They were easily driven, pumped out, and each flowed freely. They were then cut off at about 4 feet below the surface of the ground, and connected into a 10 inch pipe laid horizontally along their tops and continued over the distance to the large wells and emptying into them, the two being joined by a 12 inch connecting pipe.

After a time the flow of water from the line of pipes began to diminish and it became evident that there was not sufficient head to keep the level of the water up to the 10 inch pipe. A duplex steam pump was then connected into the line to discharge into one of the large wells. This pump was an 8x10x12, capable of pumping about 800,000 gallons in twenty-four hours at an easy speed. When this pump was started it was found that the full quantity of water was had, which amounted to about 400,000 gallons. This supply continued right along, making a total supply from all of the wells of about 800,000 gallons per day. This has been pumped for about seven years continuously and has given perfect results. The supply is evidently permanent and it was secured at a very low cost.

Doubtless a water supply from driven wells could be utilized in a great many places to great advantage. There are many locations where water cannot be had in any other way, and where such wells would give an abundant quantity. In the near future such supplies will without doubt be developed to a marked degree all over the country. The water from them is invariably clear and pure, and they can often be put in at comparatively little expense.

Paper Slitting Machine.

An illustration is given of an improvement in paper slitting machines, the object of which is to improve the manufacture, operation and adjustment of the slitters.

Figure 1 represents an end elevation, partly in vertical transverse section on line 1—1 of the succeeding figure, illustrating a portion of a paper slitting machine; Fig. 2, a front elevation partly in section of the assembled parts shown in the preceding figure, and Fig. 3, a detail view of a slitter holder which possesses the same characteristics but differs somewhat in form from the one shown in the former figures.

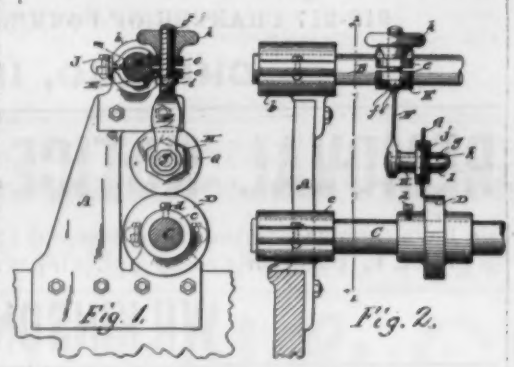


Fig. 1. Fig. 2.

PAPER SLITTING MACHINE.

Fig. 3.

A represents one of a pair of standards secured to a suitable base and provided with bearings *b* for a stationary horizontal shaft B, and journaled in other bearings *c* belonging to the standards is another shaft, C, to which a rotary motion is imparted by any suitable means. Held in variable adjustment on the shaft C, by a set screw *d* or other suitable means, is a paper support in the form of a collar, D, and the latter may be indefinitely multiplied. The parts thus far described are common in paper slitting machines, and in some of the latter a roll having a series of circumferential grooves has been employed to take the place of collars on the rotary shaft.

Fitted on the stationary shaft B, is a split ring, E, having approximately lateral extremities constituting clamp jaws *e* provided with registering openings, the lower one of which is screw threaded to engage a correspondingly threaded tang, *f*, of a depending spring piece, F, but this tang loosely engages the other of the openings. The depending spring piece F constitutes a hanger for the arbor *g* of a slitter. Suitable nuts *h*, *i*, on the screw threaded tang *f* of the spring hanger F bear against the outer faces of the radial jaws *e* belonging to the split ring E, and not only serve to bind the latter fast in adjusted position on the shaft B, but also serve to maintain the spring hanger in vertical adjustment.

In Figs. 1 and 2 the spring hanger F is shown in the form of a blade, while in Fig. 3 it has the form of a bow, either form being the same in function and interchangeable for the other. The slitter arbor *g* connected to each spring hanger F is rigid with the latter, and the slitter itself preferably comprises a circular cutting blade, G, clamped between flanges on opposing sleeves H, I, the latter being free to revolve upon the arbor. As shown in Fig. 2, it is also preferable to have the sleeve H provided with a screw threaded conical stud *j* for engagement with a central opening in the blade G and a corresponding recess in the opposing sleeve, the flanges of these sleeves being polygonal, in order that they may be acted upon by a wrench to effect the screw threaded engagement, and a consequent clamping of the blade in position intermediate of the sleeves. When a spring hanger of the form shown in Fig. 1 is employed, a key, *k*, may be transversely engaged with the free end of the arbor *g* to serve as a stop to prevent the sleeve I from working loose.

The slitter blade G may be beveled, but a blade having a square edge whereby a slitting operation on either side of a groove or roller opposed to the blade, and at the same time such a blade can be trued up with less difficulty than one having a beveled edge, is preferred.

The spring hanger F, of either form, keeps the slitter up to its work, and obviates the side thrust or canting on the arbor, a common fault with the usual slitters.

To change the position of a slitter, the split ring E is loosened by a turn of the nut *h* on the tang *f* of the spring holder F, and the ring moved along on the shaft B, it being preferable to provide the latter with a longitudinal groove, *m*, for the engagement of a set screw, J, which has its bearing in the ring. By means of the screw and groove engagement described the clamp or split ring E is held against turning when an adjustment on the shaft B takes place, and upon withdrawal of the screw from the shaft groove the slitter may be swung up out of the way when not in use. Because of the screw threaded engagement between the lower jaw of the split ring E and the tang *f* of the slitter hanger F together with the position of the nut *i*, the hanger is held in its predetermined vertical adjustment when the nut *h* is loosened to permit of the split ring being moved in one direction or the other along the shaft B upon which it is supported. The screw thread engagement between the lower jaw of the clamp ring and the tang of the slitter hanger also admits of an axial adjustment of said tang to vary the angle of the slitter with relation to the opposing paper support, thereby giving a greater or less shear at the cutting point.

Extracts from John's Letter.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

Mr. Editor:

In my last letter I described the arrangement of a wet part of a certain cylinder paper machine, from the screens to the vats; in this I will continue the description, starting where I left off. The machine had four cylinder molds and two felts, one felt for each two cylinder molds, and was constructed for the purpose of making heavy manilla papers. The two cylinder mold vats nearest the screens were elevated 12 inches above the two which stood next to the paper machine. This was for the purpose of allowing the felts from the first two cylinders to run upon the last two cylinders in as straight a line as possible, in order to keep the stock or layers which had been formed on the first two cylinder molds and carried by the first felt, from being mashed at the third cylinder, when in the act of being united with those formed on the third and fourth cylinder molds.

* * *

The cylinder mold vats proper on McDougal's machine were well calculated for the work which they were to perform, namely, for making a strong sheet, and to form it evenly across the entire machine, not heavy on one and light on the other side. They are conspicuous for their compactness, simplicity, neatness, and especially the absence of all makeshifts usually found upon the cylinder mold vats of most cylinder paper machines, and which are employed to remedy some defective construction in the cylinder mold vat itself. There were no agitators on McDougal's cylinder mold vats, for when they were built he reasoned this way: "Why are agitators placed in cylinder mold vats? To stir up the dead stock which accumulates in them, and to keep the stuff from settling into dead stock, in which condition it sometimes comes out onto the cylinder mold in lumps, thereby marring the sheet or web. When, where and in what kind of cylinder mold vats have agitators invariably been found necessary to successfully operate the paper machine? In cylinder mold vats which have a large space under the cylinder mold, and which have no round bottoms or angled corners, but on the contrary have much space here for stuff, and in vats which have spaces exceeding 5 inches from the front face of the cylinder mold to the partition nearest to it, or from the rear face of the cylinder mold to the rear wall of the cylinder mold vat. Then agitators are placed in cylinder mold vats to remedy some faulty construction, and are invariably found necessary in those which have so much space that they accommodate more stuff than is necessary to form the web layer or sheet, and thus the surplus stuff remains in the vat and occupies the extra spaces, and becomes dead stock, which requires the mechanical means known as an agitator to stir it up to a proper consistency, so that it will work as it ought to do while forming the web. Therefore, what is necessary to correctly construct a cylinder mold vat which will not accumulate or contain any dead stock? To construct it so that there will be no unnecessary spaces in the cylinder mold vat, neither before, behind nor under the cylinder mold, but the vat to have just enough space to accommodate the stuff which is necessary to form the web; by so doing fresh stuff is constantly supplied, out of which the sheet is formed, and no pockets are left for dead stock; hence there will be none, and no occasion whatever for the use of agitators in the cylinder mold vats."

It is needless for me to add that his vats were constructed with these points well in view, hence the success which crowned his effort; and the moral for others to follow is, when you have vats to construct, see to it that they embody McDougal's idea of a perfect cylinder mold vat.

* * *

Another feature contained in the construction of McDougal's vats, which is worthy of notice, is that the stuff was fed to them through their bottoms; that is, the stuff from the settling boxes or mixing chest was conveyed from out of their bottom into a pipe with T connections, this pipe running underneath the vats and through another T connection emptying into or rather through the bottom of the cylinder vat midway between the sides, or on a line central with the face of the cylinders and into a distributing partition or box in which the stuff deployed from the centre of the machine toward the front side and toward the drive side of the paper machine, equally distributing the stuff across the entire width of the paper machine. The stuff in leaving this distributing partition or box (which was a part of the cylinder vat) passed through a perforated board bottom (by which I mean a board bored full of holes), which was also provided with bungs by means of which some of the openings might be closed if it should be desired to throw the stock toward the front side or drive side, or keep the stock well in the centre of the distributing box and the vat, which can be easily done by their use if it is found necessary or desirable, in order to form an even sheet across the entire width of the machine. The stock after leaving the distributing box passes under an adjustable gate partition and over a stationary partition, after which it flows into the main chamber of the vat. Right here I wish to remind you that these partitions were put in loosely and held in position with cleats, so that they might easily be moved or re-set if desired; the space between the two partitions was very narrow—about 1½ inches; and here lies the secret in getting a good current of

EXCELLENT MILL WRAPPERS FOR BOOK and NEWS,

1 3-4 CENTS PER LB.

Samples furnished on application. Correspondence Solicited.

A. STORRS & BEMENT CO.,

85 and 87 Franklin Street, Boston, Mass.

LARGEST MANUFACTURERS OF

COVER PAPERS

IN THE WORLD!

☞ Send for New Sample Book and note additions to line.

CROCKER MANUFACTURING CO., HOLYOKE, MASS.

NONOTUCK PAPER COMPANY,

HOLYOKE, MASS.

TWO MILLS—TWENTY-FIVE TONS DAILY.

FLAT AND RULED WRITINGS, ENVELOPE PAPERS, ENAMELED BOOK, COATED LABEL, SUPERCALENDERED AND MACHINE FINISHED BOOK.

PIEDMONT PULP AND PAPER CO.
WEST VIRGINIA PULP CO.
WEST VIRGINIA PAPER CO.

MILLS AT PIEDMONT AND DAVIS, WEST VIRGINIA.

MANUFACTURE PER DAY:

20 Tons Best Quality Bleached Sulphite Pulp.
25 Tons High Grade Unbleached Sulphite Pulp.
20 Tons Extra Machine Finished and Supercalendered Book and Lithograph, Engine Sized Flats and Envelope Papers. Express and Manilla Papers.

OFFICE: { MUTUAL RESERVE BUILDING, Broadway and Duane St., New York.

THE OAKLAND PAPER CO.,

Manchester, Conn.

MANUFACTURERS OF

No. 1 Engine Sized, ALL RAG White and Colored, Flat and Envelope

PAPERS.

ALL RAG DUPLEX ENVELOPE A SPECIALTY.

Send for Sample Book. **N. T. PULSIFER, Treasurer.**

WHITMORE MANUFACTURING CO., HOLYOKE, MASS.

—MANUFACTURERS OF—

COATED LITHOGRAPH AND CHROMO PLATE

PAPERS AND CARD BOARD.

WHITE, TINTS AND COLORS.

PASTED WEDDING BRISTOL A SPECIALTY.

POLAND PAPER COMPANY,

MANUFACTURERS OF

BOOK PAPER,

Mechanic Falls and Gilbertville, Maine.

Eagle, Star, Diamond, Poland, Union, Androscoggin and Canton Mills.

C. R. MILLIKEN, Treasurer.

NEW YORK OFFICE, TIMES BUILDING, ROOM 131.

LOOK.

If you are in the market for **BRISTOL** and **CARD BOARD** correspond with the largest manufacturers and dealers in the United States.

LARGE SPECIAL LOTS ALWAYS ON HAND.

LINTON BROS. & CO.,

JAMES LINTON,
BENJAMIN M. JACKSON.

PAWTUCKET, R. I.

OSBORN & WILSON.

WHOLESALE DEALERS IN

HARDWARE, BOOK, NEWS, AND MANILLA PAPERS,

No. 37 WARREN STREET, NEW YORK.

A. G. ELLIOT & CO.,

30, 32 & 34 South Sixth Street, Philadelphia.

BEING AGENTS FOR ALL THE LEADING MANUFACTURERS, OUR STOCK IS UNEXCELLED AND FACILITIES ARE AMPLE TO EXECUTE ORDERS PROMPTLY.

ALBION PAPER COMPANY,

Holyoke, Mass.,

Manufacturers of Machine and Super-Calendered

BOOK PAPER,

—ALSO—

ENGINE-SIZED FLAT PAPER.

EDWARD C. TAFT, Treasurer.

Chelsea Paper Mfg. Co.,

MANUFACTURERS OF

Coated, S. S. and C., Machine Finish.
Coated Label and Lithograph Papers.
Loft Dried and Engine Sized Flat Writings and Envelope.

Superfine Book Papers.

OFFICE: 140 NASSAU ST., NEW YORK CITY.

MILLS AT NORWICH, CONN. CAPACITY THIRTY TONS DAILY.

COLUMBIA STRAW PAPER CO.,

MANUFACTURERS OF

Straw Wrapping Paper

913-917 CHAMBER OF COMMERCE BUILDING,

CHICAGO, ILL.

REMOVAL NOTICE.

After more than a quarter of a century on DUANE STREET we have removed to the large store 419 & 421 BROOME STREET, between Crosby and Elm Streets, New York.

WILKINSON BROS. & CO.

PAPER TWINES

W. J. THOMPSON & CO.,

Book, News and Manillas,

34 HIGH STREET, Cor. Federal, BOSTON.

MILLS HAVING SPECIALTIES IN THESE LINES, WRITE US.

FREDERICK BERTUCH & CO.,

Rooms 308, 309 & 310 Temple Court Building, New York,

—AGENTS FOR—

CHR. CHRISTOPHERSEN,

CHRISTIANIA.

Chemical and Mechanical Wood Pulp.

BRANCHES:

CHR. CHRISTOPHERSEN & CO., - London. | LAMMLETH & CO., - - Paris.
CHR. CHRISTOPHERSEN'S FILIAL, Göteborg. | GEO. v. d. BUSCHE, - - Hamburg.

SISAL TWINE FOR PAPER MAKERS

MY SPECIALTY.

Write for Samples and Prices to **JAMES CATING,** *Manufacturer,*

MASPETH, LONG ISLAND, N. Y.

Stone & Forsyth,

268 DEVONSHIRE ST. - BOSTON. -

AGENTS FOR

P. AND B. WATERPROOF PAPER!

FOR WRAPPING and LINING.

Particularly Desirable for Paper Mills,

For Lining Cases, absolute protection from dampness guaranteed.

ODERLESS!—CLEAN!—EFFECTUAL —CHEAP! Send for Samples and Prices.

JAMES M. FITZGERALD,

Paper and Paper Makers' Supplies.

ENGINE SIZED FLATS AND MACHINE FINISHED BOOK A SPECIALTY.

Dealer in

Book, News, Colored and Manilla Papers.

A large line of Paper and Paper Stock always on hand.

OFFICE AND PAPER WAREHOUSE:

135 & 137 South Fifth Avenue.

PACKING HOUSE FOR PAPER STOCK:

75 & 77 King Street, - New York City.

E. G. LOCKE,

MANUFACTURER OF

Fine Surface Coated Glazed and Fancy Papers,

FOR THE USE OF

Paper Box Manufacturers, Lithographers, Label Printers, Publishers, Bookbinders, &c.

Factory and Office: Nos. 33 & 35 Cooper St., CAMDEN, N. J.

Telephone: "No. 236 Camden."

GEO. H. TAYLOR. JAS. T. MIX.

GEO. H. TAYLOR & CO.

Paper Dealers,

207 and 209 MONROE ST., CHICAGO,

—IN—

EXTRA SUPERCALENDERED,
No. 2 SUPERCALENDERED

ALL GRADES AND COLORS.

Print, Manilla, Colored, News,

COVER PAPERS, PLATE AND CHROMO.

We have excellent facilities for disposing of job lots of all grades that can be purchased at low prices. Samples of same and regular line are solicited.

A SPECIALTY OF LARGE CONTRACTS FOR ROLL PAPER.

Nashua Card and Glazed Paper Co.,

NASHUA, N. H.,

MANUFACTURERS OF

Cardboard and Surface Coated Papers, Fine Wedding Bristols, Calendar Boards, Fan Boards, Playing Card Stock, Mat Boards, Coated Lithograph Boards, Flint and Friction Glazed Papers, Enameled Book and Cover Papers, Embossed Box and Cover Papers. . . . . .

SEND FOR CATALOGUE.

NEW YORK STRAWBOARD CO.,

63, 65 & 67 Crosby St., New York,

—DEALERS IN—

STRAWBOARDS.

Strawboards lined to order, all sizes and colors.

THE GLEN MILLS PAPER CO.,

MANUFACTURERS OF AND DEALERS IN

Parchment Papers,

WILLCOX WATERLEAF,

Music Papers and Rag Specialties,

518 and 520 Minor Street,

PHILADELPHIA, PA.

MILLS GLEN MILLS, DELAWARE CO., PA.

the stuff in a cylinder mold vat; and McDougal saw that this was not overlooked. There are many cylinder mold vats in use which have a poor current. To all mill men having such vats in use I would give this bit of advice: Just move your partitions closer together and behold the result. If your vats are too large you may find it necessary to add another partition or two to fill up the surplus space. The distance between the nearest partition and the front face of the cylinder mold was about 3½ inches, and from the rear face of the cylinder to the rear wall of the vat was about 2 inches, and the distance from the face of the cylinder to the inside of the bottom wall of the vat was about 6 inches; the sides in front and rear of the face of the cylinder and the bottom of the vat formed almost a complete circle, thereby blocking away all space not necessary for the stuff which formed the web, and at the same time blocking away the source from whence came the dead stock, commonly found in most vats. The cylinders were made open at each end, and the vats had corresponding water pockets on the front and drive sides of the machine; these pockets were connected through the vat with each other, and these in turn were connected with the fan pumps. Suitable floats were also provided for the same, one for each vat. These floats controlled a valve commonly called an escape or butterfly valve, which permitted the water or a part of it which was in the water box to escape, thereby regulating the height of the stuff in vat. They were also provided with washout valves in the bottom, and the sides were arranged so as to be easily and quickly got at for cleaning and washing up when it was desired so to do. I also wish to observe that the stuff pipe connections, those on the pipes which conveyed the stuff from the mixing boxes to the vats, had removable plates, which were held on by clamps and which could be conveniently and easily removed for cleansing, and the entire arrangement about the machine was such that they could be easily and quickly swabbed or washed out. The distance from the top surface line of the cylinder mold to the surface line of the vat was as near as I can remember about 4 inches, which makes the vat a little higher than is ordinarily found. This also causes the cylinder to set rather deep in the vat and stuff, thereby giving the web longer time to form and less liability to slide off from the cylinder after it is once formed.

* * *

The couch rolls were held in position in stands so constructed that the shower pipes for the various cylinders could be set close to the face of the molds, so that the water from the shower pipes would strike the cylinder molds with force and wash them clean; the upper ends of the couch roll stands were provided with suitable resting places for the couch rolls when it became necessary to lift them up for the purpose of getting at the cylinder. There were also suitable pressure levers and weights affixed with which to regulate the pressure of the couch roll upon the face of the cylinder when it was desirable or found necessary to do so.

* * *

The fan pumps, of which there were four, one for each vat, were of such a pattern that their delivery openings could be set at any angle from a horizontal to a perpendicular, and their shell was parted in such a manner that one-half could be removed without loosening the entire pump should it be found necessary to do so. The fan pumps were set with their discharge pointing vertically and overhead pipes were connected to them to carry the water from the fan pumps to the water box, from which outlets were had to supply the screens, mixing boxes, &c. I desire to call special attention to the advantages obtained by connecting the fan pumps to the water box with an overhead pipe system instead of placing them along the floor of the machine room. First they are out of the way and where machine tenders will not fall over them; secondly, they are in a position where they can be easily got at when it becomes necessary to take them apart for cleansing. In all mills where they are thus arranged superintendents would not go back to the old method, and parties piping up a a cylinder paper machine will make no mistake to follow this plan.

* * *

When three or four or more cylinder molds having two felts are used on a paper machine it sometimes happens that the paper or board becomes air marked or "calf tongued," as some paper makers call it, and it has always been, and is yet, a question as to where the air made its entrance between the two felts. I am of the opinion that this takes place at the point where the two felts connect at the couch roll of the third cylinder mold, where four cylinder molds are used, and each two cylinder molds have an independent felt. It is here that the air has the best opportunity to get between the two felts and play the mischief by marring the sheet. A good remedy, and one for which I can vouch, is to place a roll over the third couch and have it so arranged by a system of levers and weights that the bulk of the weight of the roll itself will be counterbalanced and that the roll will only press lightly and gently upon the two felts and their sheet, thus forcing the air out, or rather preventing it from entering between the felts. In placing this roll in position care must be taken to place it upon the tangent of the roll at precisely the point where the two felts meet or it will not give the desired result.

JOHN.

Correspondence.

Miami Valley.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, April 26, 1894.

The business prospects of the valley paper manufacturers seem to be brightening considerably. If there are any shut downs among mills in this section of the State they exist only temporarily, and possibly not from dire necessity caused by the lack of trade. Of course the usual spring impetus of orders contains the bacteria of the recent and at one time all prevailing distress in manufacturing centres. The news of a general awakening comes joyfully from many mill towns.

In paper stock circles the same cry of "painfully dull" is yet heard; but even this class of trade is living in better hope than that expressed a month ago. The stock trade has been as uncertain as death is certain, and thus the ball rolls. Luckily the Miami Valley has naught but substantial firms of this kind, or the penetrating keenness of inactivity would have wrought great calamities.

Paper novelty firms have weathered the storm with an air of indifference. Occasionally we hear a grumble, but owners either have the happy faculty of perennial content or realize that complaint only stirs an ill wind in the desert.

Perhaps no Congressional contest in National affairs has attracted such widespread interest as that which will wage next Tuesday, May 1, in this grandly historic Third District of Ohio—a district heretofore represented by some of the ablest statesmen of the age. Certainly many paper manufacturers here and abroad enjoy a personal acquaintance with one of the candidates, Hon. Paul J. Sorg. This gentleman only recently purchased the Middletown Paper Company's mills and is consequently deeply interested in the paper trade. Without disparagement to the other candidate, it may stated that Mr. Sorg is eminently qualified for the position. He was a hard working molder before he acquired his millions, and even now considers the workingman on an equality with the opulent barons of trade. He is a deliberate thinker and will not oppress the poor if elected. His opponent, Estes G. Rathbone, ex-Fourth Assistant Postmaster General, is a capable gentleman, worthy of the trust, and interested ones will witness the coming battle with considerable personal animation. In Middletown Mr. Sorg's name is really a household word. He has extended noble and mighty efforts in behalf of the hustling little city and has afforded unlimited comfort for all those associated with him. When it is considered that he supports many hundreds of the working classes employed in his paper mills, tobacco works and other enterprises, this unusual popularity is explained and does not appear so remarkable.

Both parties have stirred the district from centre to circumference, and before the political fever subsides men of national distinction will have propounded "weighty truths" on the important subject of the day. Those booked for engagements in Dayton are ex-Speaker Reed, Gov. Wm. McKinley, ex-Gov. J. B. Foraker, ex-Gov. Campbell, Congressmen Boutelle and Burrows, Senator Brice, Bourke Cockran, Secretary Carlisle, Comptroller of the Currency Eckles, Deputy Commissioner of Pensions D. I. Murphy, Speaker Crisp, General Black, of Illinois, and a host of others equally distinguished. Most of these statesmen have consented to speak, and the paper trade may expect an eloquence cyclonic in its character.

The Weston Paper and Manufacturing Company, of this city, intends to make its shipment of display goods for the Antwerp Exposition next week. An assorted line will be exhibited, and if the success of the exhibit will only half repay the company in comparison to that at the Columbian Exposition, no dissatisfaction will be expressed. There are other Dayton manufactories which will be represented at this great international fair, but this is the only company in the paper trade which has made definite arrangements, so far as can be learned.

Mr. Weston, who devoted much of his time to the World's Fair, will possibly sail for Antwerp after matters are more thoroughly arranged, and will take personal supervision of the exhibit.

The W. W. White Paper Company's whistle is a "cuckoo," to use the expression of the employees. It greatly reminds one of a trip down the Mississippi on a steamer which fairly trembles beneath the mighty volume of harmony emanating from the whistle. There is some indefinable inspiration connected with this whistle, which is plainly audible above the din and confusion of the city for several miles. Your correspondent resides fully a mile from the mill, and the beautifully modulated tone comes with a distinctness which would indicate its immediate proximity.

The Wrenn Paper Company's mills at Middletown have resumed operations after a shut down of three weeks. The suspension was not due to dull trade alone, but advantages were grasped and improvements inaugurated. The employees are jubilant over the prospects of continued labor.

In the case of the Market National Bank, of Cincinnati, against C. M. Harding et al., the Harding Paper Company and the Franklin Hydraulic Company have been given leave to file pleadings in ten days.

A new fire alarm box has been placed in position by the city at the W. W. White paper mills. It sounded No. 621 the other afternoon for the first time simply as a test.

A momentous event in the history of Hamilton took place the other evening in the festivities of the first banquet given by the Hamilton Club. This is not merely a social organization, but was formed a few years ago for the general improvement of the city. That it has not mistaken its object is in evidence on every side in that manufacturing centre. Many manufactories, factories and shops of all kinds have located there within recent years under the direct influence of the club, which boasts of leading capitalists and mill owners as members. It has even

THE GLEN MFG. CO., OFFICE: 244 WASHINGTON STREET, BOSTON, THE HAVERHILL PAPER CO.
NEWS PAPER AND WOOD PULP.

CHAS. D. BROWN & CO. 154, 156 & 158 Congress St., BOSTON, MASS.
FOREIGN AND DOMESTIC PULPS AND FIBRES. PAPER MAKERS' CHEMICALS AND MILL SUPPLIES.

DIRIGO FELTS. MANUFACTURED BY THE MEGUNTICOOK WOOLEN CO.
BEST AMERICAN FELTS MADE—SUPERSEDING ENGLISH FELTS.
CHAS. D. BROWN & CO., Sole Agents, - - 156 & 158 Congress Street, BOSTON, MASS.

W. A. BINGHAM & CO., 186 & 188 FRANKLIN STREET, NEW YORK.
PAPER, PAPER BAGS, FLOUR SACKS, &c.

THE CENTRAL OHIO PAPER CO., Columbus, Ohio.
O. A. MILLER, Pres. and Treas.
J. H. FRIEND, Vice-Pres.
K. D. WOOD, Secretary.

J. L. & D. S. RIKER, 45 CEDAR STREET, NEW YORK.
Importers and Manufacturers' Agents.
SOLE AGENTS FOR THE UNITED STATES AND CANADA ALL TESTS Soda Ash and Alkali.
OF
THE UNITED ALKALI CO., Ltd., of Great Britain, BLEACHING POWDER.
FOR THE SALE OF THEIR VARIOUS BRANDS OF

PERKINS, GOODWIN & CO.,
Nos. 66 and 68 DUANE STREET, NEW YORK,
Have on hand and to arrive all grades of Bleached and Unbleached
SULPHITE AND SODA PULPS. SEND FOR SAMPLES AND PRICES.

been aggressive and up to the needs of a thriving town.

Many prominent men were in attendance. Governors, consuls, congressmen, senators and distinguished editors, all of whom either claim Hamilton as their home or consider their advancement due to Hamilton spirit, were present in body and soul. Of those responding to toasts none scored a brighter success than L. P. Clawson, the paper mill machinery manufacturer, connected with the Black & Clawson Company. He spoke enthusiastically on the requisites required to build a city, and did ample justice to the subject. It was plain, practical, pungent, and moreover very conservative.

There is little doubt that the sale of the Gunckel concern—or, more properly speaking, the Middletown Paper Mills—will be confirmed by the court. The trustee has applied to the advisory committee, consisting of Col. Harry Mead, of Dayton; Hon. P. J. Sorg, of Middletown, and I. Z. Sutphin, of Cincinnati, and of course it was the unanimous opinion that the sale was timely and discreet. Upon recommendation of the trustee the court will confirm, and a sensational chapter in the financial crisis will have ended. M. V.

Fox River Valley.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., April 24, 1894.

Plans for remodeling and reconstructing the mills of the Dells Paper and Pulp Company at Eau Claire, now being prepared by C. B. Pride, of this city, have progressed sufficiently to give a general idea of the appearance and dimensions of the buildings. The main building used in the former mill is 60x200 feet in size, three stories high. It will be used as the machine room of the new mill, and will accommodate two machines. The interior will be entirely torn out and reconstructed. On one end will be constructed a finishing building, 42x150 feet, three stories high, and on one side an engine building, 96 x 40 feet, two stories high, large enough for eight engines. On the back end the water power has been constructed, containing five sets of horizontal wheels of 240 horse power to the set, each set coupled directly to one large New England pulp grinder. The grinder room has been blasted out of the solid rock, and has rock floor and walls. There will also be two vertical wheels for running the paper machines, and four vertical wheels for running the rag engines, &c. The head of water will vary between 18 and 24 feet at different seasons of the year. There will also be a boiler house for six steam boilers with a brick stack 125 feet high.

At a meeting of the stockholders of the Falls Manufacturing Company, of Oconto Falls, held at Neenah yesterday, some changes were made in the organization of the company. Two new stockholders were admitted, C. B. Pride, of Appleton, and George Maurer, superintendent of the Oconto Falls Mill. N. H. Brokaw, of Kaukauna, also increased his holdings of the company's stock. The name of C. B. Pride was added to the board of directors, but the officers remain the same, namely: D. R. Davis, of Neenah, president; A. C. Merriman, of Marinette, vice-president; N. H. Brokaw, of Kaukauna, secretary, treasurer and general manager. The new paper mill which this company is to build this season will be running September 1. All of the rock work for the water power was done some time ago, and the buildings only must be constructed, a finishing room and engine room, and equipped with machinery to have the plant in running order. The contract for the 108 inch paper machine was let last week to Pusey & Jones. The contract for the 104 inch Fourdrinier for the Dells Paper and Pulp Company's mill was let at the same time to the same firm. The Falls Company's machine is to be delivered August 1.

The Howard Paper Company, of Menasha, has secured a new general manager in the person of Geo. N. Friend, of Wyoming, Ohio, well known to the trade generally, the son of the late Colonel Friend, of the Friend & Fox Paper Company. Mr. Friend assumed his duties last week and is rapidly making pleasant acquaintances in the valley. He is an experienced paper maker and an affable gentleman.

The Plover Paper Company, whose mill started two weeks ago, is showing some remarkably handsome samples of flat papers which it is making. It is a first-class plant throughout and is well equipped in its superintendent, who is John Forsythe, the man who started the De Pere plant of the Shattuck & Babcock Company.

The No. 2 mill of the Marinette and Menominee Paper Company started up yesterday after its general repairs. The entire plant is now in operation, with a total weekly capacity of 250 tons of paper and 150 tons of pulp, requiring a daily consumption of 10 cords of wood. The record made last week of 178,000 pounds of paper on a 108 inch machine is considered a fine showing.

W. W. French, vice-president and general manager of the Three Rivers Paper Company, of Three Rivers, Mich., was in town last week. He is in the habit of visiting the Fox River Valley every year to keep abreast of local enterprise, and this was his annual visit. His company has mills both at Three Rivers and Niles; a 78 inch being operated at the former place and a 96 inch at the latter. The company is well represented in the municipalities where it is located. Mr. French was re-elected mayor of Three Rivers at the spring election, and his brother, Ed. French, also well known to the trade, has just retired from the mayor's chair at Niles, having declined a renomination this year. N. H. Brokaw, the Kaukauna fibre manufacturer, was originally employed at the Three Rivers mill.

Navigation opened on the Fox River the 20th of the month and steamboats are now making their usual trips.

The funeral of John Vanderhooel, killed by the bursting of a cylinder at Kimberly, occurred last week at Little Chute. The cause of the accident is still undetermined. The man leaves a family.

President Alex. Paul, of the Paul Paper Company, of Menasha, wears on his watch-guard a French 20 franc. gold piece, which ten years ago he found in a drainer of the Wauregan Paper Company's mill, where he was employed. It had evidently come in with some French rags, and had passed through the rag room and bleach boiler and lodged in the engine. The owner can doubless have it by proving property.

In the Circuit Court last week Jos. Thielan was awarded $1,500 damages against the Badger Paper Company for the loss of fingers in the defendant company's mill.

The Fox River Paper Company is awaiting the arrival of the driving belt, which is expected shortly, in order to make the final test of its new steam engine. The engine runs well without the load.

Dr. V. Drewsen, of Christiania, Norway, and N. C. Bonnevie, of Dexter, N. Y., are visiting the Fox River Valley district. Dr. Drewsen has only been in America two weeks. He is a Norwegian sulphite fibre manufacturer.

Mr. and Mrs. William Gilbert, Sr., of Menasha, returned home Saturday from St. Augustine, Fla., where they spent the winter. Albert Gilbert has also just returned from Port Gibson, Miss., the former home of his wife, where she is at present visiting her parents.

W. H. Bucher, of Cincinnati, is spending a week in this valley on a business trip.

Contractor Frank Perry, of Sault Ste. Marie, was in town last week.

Henry L. DeWolf, of Niles, Mich., visited local industries here last week.

FOX RIVER.

Cincinnati.

[FROM OUR REGULAR CORRESPONDENT.]

CINCINNATI, Ohio, April 23, 1894.

An air of quietude pervades paper circles. Men in the business assume a prepared-to-take-things-as-they-come attitude, and no complaints are heard. They say that business is dull because it is not lively. Conditions are peculiar. When in the morning a dull day is anticipated, matters turn out differently before sun-down and vice-versa.

Comparisons appear to be deceptive. The year 1893 was unusually dull. This year thus far has been an improvement. From January 1 last, up to the present time, Chatfield & Woods have done a much better business than during the corresponding period of 1893. Diem & Wing's business this year so far has exceeded the corresponding period of last year by $50,000.

These facts, while gratifying of course, are not attributable alone to the improved state of trade. There is another condition which is important. The failure of the Louis Snider Sons' Company has taken from the Cincinnati trade an extensive house and other houses are profiting thereby.

There is nothing particularly lively up the valley. A slacking up in orders is the cause of the mills not running on full time. This is generally speaking. However, affairs seem to be looking up all around. That there is a better feeling cannot be questioned. Prices are also a little steadier. It is a noticeable feature of the paper trade here that the men who have been giving the lowest prices are those who have looked longest for orders. Those who have held up their prices are they who now declare that trade has a better outlook.

Chatfield & Woods are doing a good, steady business, and their men on the road show by their orders that trade is getting better. This house purchased the stock of the Louis Snyder Sons Company, and has been disposing of it under the direction of Charles George, the old manager for the Sniders.

The Kemper-Thomas Company also reports a steady trade in wrapping.

W. A. Stuart, of the Browne & Stuart Paper Company, is in Chicago. The trade of this firm extends to Chicago and St. Louis. Mr. Browne reports that they are doing a good business and have no cause to complain. "If the tariff question ever gets settled we will do better," blandly observed Mr. Browne.

Diem & Wing have ten men on the road at present, covering a territory extending from Detroit to New Orleans and as far East as Buffalo, N. Y. A bad accident recently happened at the Main street warehouse of this firm. On a recent Sunday the entire fourth floor surrounding the skylight in the stationery department gave way throwing thousands of dollars worth of goods to the ground floor. The damage to the stock reached $3,000 and the building was damaged to the extent of $1,000. The accident was due to the faulty construction of the building as the rafters were not properly connected with the walls. The débris was composed of a mass of paper, envelopes, letter heads and bill heads, 10 feet high. Had the accident occurred during the week and in the day time several deaths would have certainly resulted. Workmen are still engaged in repairing the damaged building, which has been made much stronger throughout by additional pillars and cross beams of iron and steel, with much stronger foundations in the basement.

Harvey Rahe is now in Northern Ohio, where he is finding an improved condition of business.

The Franklin Mill at Hamilton is now in full operation under the trusteeship.

George E. Bardeen, of the Bardeen Paper Company, Otsego, Mich., was recently here on a business trip.

It is reported that Henry J. Snider will soon open another paper house in this city.

The sale of the Amanda Paper Mill is set for May 12. Much interest has been centred in the sale of this property, as it will go far toward accelerating the settlement of the United Paper Company's affairs.

The papers of incorporation of the Middletown Paper Mill's new owners were filed two days ago. The incorporators are George C. Jacoby, T. C. Simpson, Paul J. Sorg, G. N. Clapp and C. E. Denny.

A new organization has just been effected, and the mill, which is one of the best in the Miami Valley, will be put in operation in a few days. J. M. Johnson will be manager, and W. J. McLane superintendent.

The three plants of the Friend & Fox Paper Company will be sold at public auction, as last week Judge Bookwalter, of this city, issued an order to that effect. The case came up on an application of the receivers to sell the property, and for the court to fix the terms of sale. Attorney Willis Kemper, who represented the stockholders, wanted the three places sold in one at private sale, in order to save expenses. This was opposed by Attorney Boyd, who represented the Fifth National Bank, which holds $23,000 worth of claims against the company. Mr. Boyd wanted the three plants sold separately at public auction. Vice-President Rowe, of the First National Bank, which holds about four-fifths of the claims, was in court, and stated that the three concerns had been appraised too high. The water privileges, which were appraised at $12,000 each, would never bring two-thirds of that amount, he said. Mr. Rowe urged that the bids be for the three plants as a whole, and another set of bids for the property separately. Judge Bookwalter decided that the sale should be public at the Court House in this city at some time yet to be agreed upon. One set of bids will be received for the three plants as a whole, and another for each separate plant. The court will pass upon all of the bids and decide which is the best for the creditors. The terms will be one-third cash, and the balance in one and two years, or all cash at the option of the purchaser. For the personal property and chattels the terms will be one-third cash, the balance in six and twelve months. The receivers will collect as much as possible of the book accounts and sell the remainder at odds and ends.

The Consumers Paper Company put their new plant in full operation at Muncie, Ind., the other day, employing 125 hands, running night and day, with an output of 125 tons of board per week. The company was organized with a paid up capital stock of $100,000. B. E. Evans, of Chicago, is the president and L. B. Boyd, of Hillsboro, Ohio, vice-president. W. N. Kendall, who has had ten years' experience, is the manager. The company will remain out of all combinations and trusts. At least that is the determination now. The plant is prepared to produce a sheet 104 inches wide, dried over 45 driers, each 118 inches wide, filled with live steam. The three buildings are of brick and stone construction.

The Champion Coated Paper Company at Hamilton, is preparing to start operations at its new mill near the Black street bridge. Sixty men will be employed at the start. The company is composed of Peter G. Thompson, president, of Cincinnati, and Joseph J. Metcalf, secretary. The company owns a similar plant at East Pepperell, Mass.

The Lima Paper Mills, of Lima, resumed operations last week, after being shut down nearly eight months. The mills employ 100 men.

On April 11 the wheels of the Stratford Paper Mills were put in motion in the little village near Delaware, Ohio. Glass, Edsell & Co. made an assignment on December 7, 1891, nearly two and a half years ago, and the mills had been idle since then. During all that time the little village has been devoid of business life. Now there are signs of the old time activity. The mills give employment to 100 hands. The machinery is undergoing repairs necessary for work on full time. A Cincinnati syndicate has leased the plant. It is composed of Julius Cahn, president, and Mr. Lowenstein, secretary and treasurer, both of Cincinnati, and Mr. Runkle, of Delaware, manager. DORAN.

HOLLINGSWORTH & WHITNEY CO.,

MANUFACTURERS OF ALL GRADES OF

Manilla Wrapping Papers, Pure Fibres and Wood Pulp.

PROPRIETORS OF

TACONNET MILLS, WINSLOW, ME.....Product: 30 tons Manilla Paper daily.
AROOSTOOK MILLS, GARDINER, ME.....Product: 7 tons No. 1 Manilla daily.
COBBOSSEE MILLS, GARDINER, ME.....Product: 8 tons No. 1 Manilla daily.
PEQUOSSETTE MILLS, WATERTOWN, MASS.....Product: 10 tons No. 1 Manilla daily.
MONATTAQUOT MILLS, SOUTH BRAINTREE, MASS..Product: 13 tons No. 1 Manilla and Pure Fibre daily.

Boston Office, 44 FEDERAL ST.

New York Office, 207 BROADWAY.

Eastern Agents of UNION BAG AND PAPER CO.; Factories at Sandy Hill, N. Y., and Watertown, Mass.

NEW YORK FILTER.

Combining the best features of over one hundred patents, including those of the well-known Hyatt, National, American and Blessing Filters.

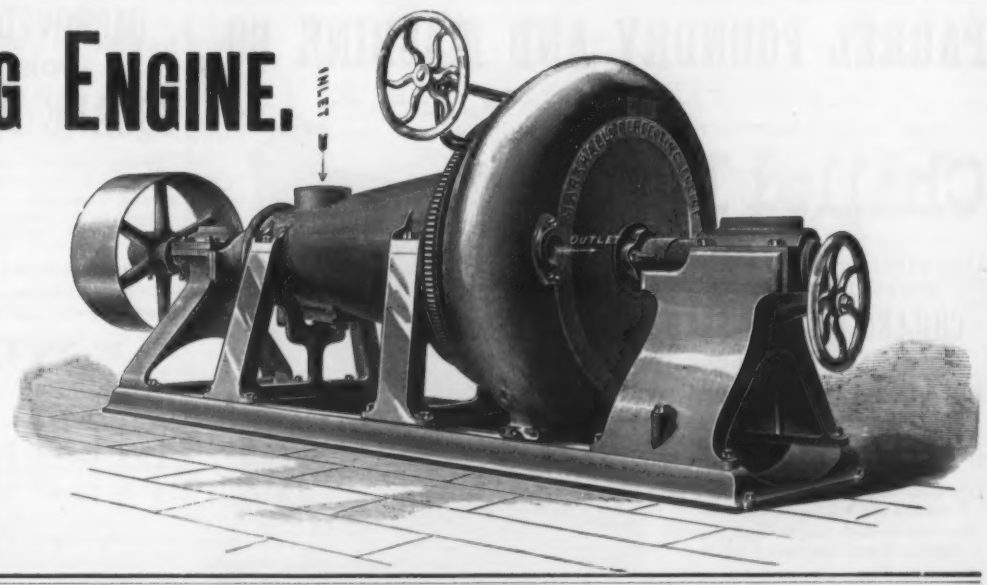
CONTRACTS MADE FOR FILTERS OF ANY CAPACITY. SATISFACTORY RESULTS GUARANTEED. PRICES, &c., UPON APPLICATION.

NEW YORK FILTER CO., 145 Broadway, New York. CHICAGO BRANCH: 85 Dearborn St. ST. LOUIS BRANCH: 304 N. Fourth St.

MARSHALL'S PATENT PERFECTING ENGINE.

SUITABLE FOR ALL CLASSES OF STOCK
AND EVERY QUALITY OF PAPER.

This Engine will produce a **better finished, stronger** and **more even** sheet of paper from the same materials than can be produced by any other mechanical process, and at the same time will greatly **REDUCE** the **TIME** and **POWER** required for Beating.



MARSHALL ENGINE CO., Turner's Falls, Mass.

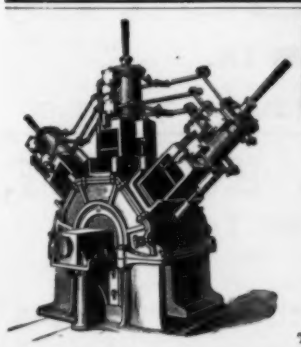
BENTLEY & JACKSON, Bury, England, Near Manchester. | USED IN THE LEADING MILLS OF THE WORLD. | EVERLINQ & KAINDLER, 14 Rue de Condé, Paris.

ASHLEY B. TOWER & CO., Architects,

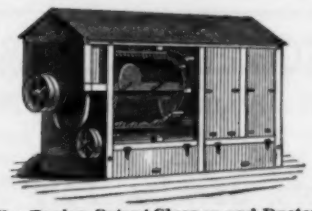
ASHLEY B. TOWER.
GEORGE F. HARDY.

HOLYOKE, MASS.

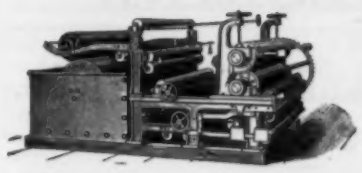
Paper Mills, Soda and Sulphite Fibre Mills, Ground Wood Mills.

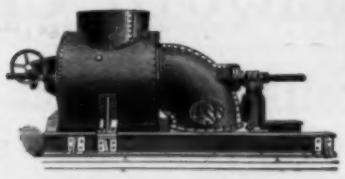


HOLYOKE MACHINE CO., HOLYOKE, MASS.



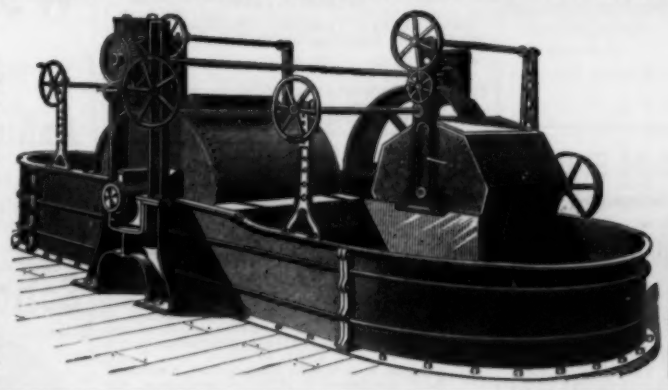
The Taylor Patent Cleaner and Duster.



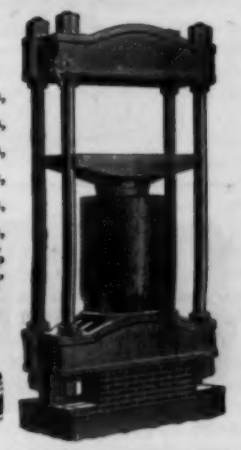


CORRESPONDENCE SOLICITED.

All Kinds of CALENDERS for PAPER MILLS, GLAZED PAPER and CARDBOARD MANUFACTURERS.

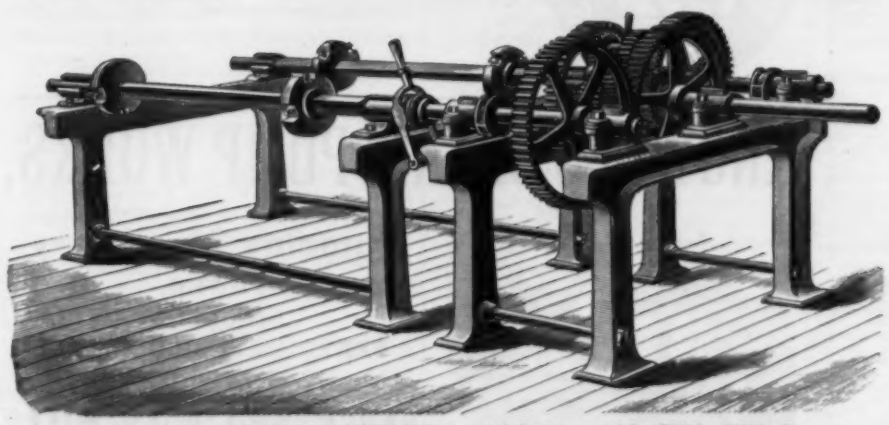


Dusters, Engines, Turbine Wheels, Cotton Rolls, Husk Rolls, Paper Rolls, Chilled Iron Rolls, Elevators, Wood Pulp Machinery, Hydraulic Presses.



THE BAGLEY & SEWALL CO.,

Watertown, N. Y.



THE BINGHAM COMPENSATING WINDER. FOR TWO REELS.

FOURDRINIER PAPER MACHINES.

LATEST DESIGNS. GREATEST RECORD OF PRODUCTION. HIGHEST DEGREE OF WORKMANSHIP. INSURING MINIMUM OF AFTER EXPENSES FOR REPAIRS.

Compensating Winders for any desired number of rolls.
Two and Three Plunger Stuff and Suction Pumps.
Hard Maple Press Rolls and Suction Box Covers,
Bronze, Rubber Covered and Chilled Iron Press Rolls,
Hydraulic Feed Pulp Grinders, Screens and Wet Machines—all of late and improved designs.

WHEN YOU WANT ANYTHING IN OUR LINE WRITE US BEFORE ORDERING ELSEWHERE.

62,419 LBS.

Fine Grade **SPRUCE WOOD PULP**, suitable for fine quality **BOOK** and **MAGAZINE** paper, were made in six consecutive days as a **regular run** of a pair of medium size **NEW ENGLAND WOOD PULP GRINDERS** at the Nova Scotia Pulp and Paper Co.'s Mill, Mill Village, Queens Co., Nova Scotia, when driven by a 74 inch Leffel Turbine, which also furnished power at same time to drive the Pumps and Wet Machines of the mill. The Turbine is rated at 300 H. P. under 17 ft. head, and the power used on the Grinders is 240 to 260 H. P., thus making over **4.000** lbs. fine Pulp per 100 H. P. each twenty-four hours.

The **New England Pulp Grinder**, also all other kinds of **Wood Pulp Machinery**, manufactured by

OLIN SCOTT, Bennington, Vt.

FARREL FOUNDRY AND MACHINE CO.,

ANSONIA, CONN., U. S. A.

THE LARGEST MANUFACTURERS OF

Chilled Rolls

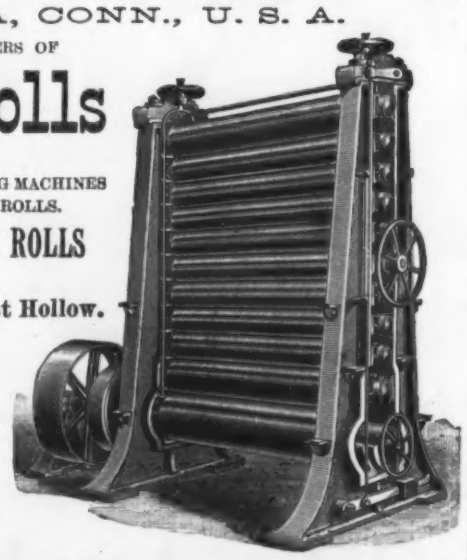
IN THE WORLD.

ALSO MANUFACTURERS OF GRINDING MACHINES FOR ALL KINDS AND SIZES OF ROLLS.

CHILLED AND DRY SAND ROLLS

FOR ALL PURPOSES.

Rolls Bored for Steam or Cast Hollow.



COMPLETE CALENDERS.

Lift Rods operated by wheels above for raising any number of the rolls.

Housings so made that the rolls may be taken out endwise through frame.

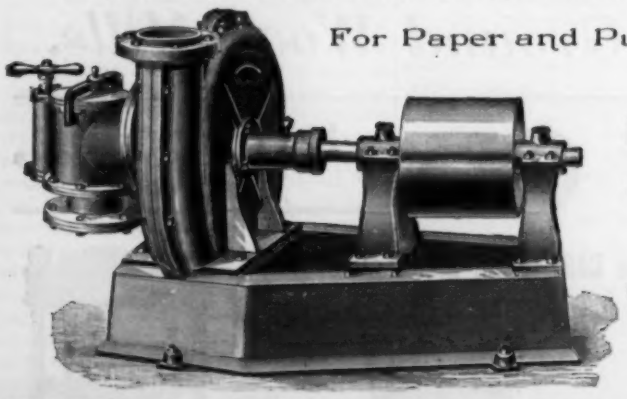
OLD ROLLS RE-GROUND AT SHORT NOTICE.

Established at Baldwinsville 1861—Removed to Syracuse 1881.

The Baldwinsville Centrifugal Pump Works.

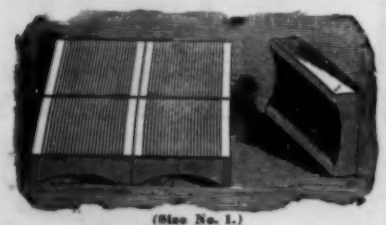
VERTICAL, HORIZONTAL and SUCTION PUMPS

For Paper and Pulp Mills.



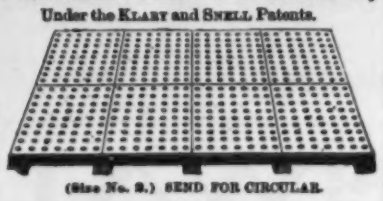
IRVIN VAN WIE,
Proprietor,
715-723 W. Fayette Street,
SYRACUSE, N. Y.

Send for Catalogue descriptive of our new Triplex Pumps.



(Size No. 1.)

SAMUEL SNELL,
Holyoke, Mass.,
MANUFACTURER OF
FILTERING STONES,
Under the KLARY and SNELL Patents.



(Size No. 2.) SEND FOR CIRCULAR.

REFER TO

HOLYOKE PAPER CO.,	Holyoke, Mass.
PARSONS PAPER CO.,	Holyoke, Mass.
BYRON WESTON,	Dalton, Mass.
BREMAKER & MOORE,	Louisville, Ky.
KIMBERLY & CLARK CO.,	Appleton, Wis.
ALEX. HUNTEN & CO.,	Montreal, Can.
PATTEN PAPER CO.,	Appleton, Wis.
MORRISON, BARE & CASS,	Tyrone, Pa.

And many others.

BOSTON BELTING COMPANY,

BOSTON. Established 1828 NEW YORK.

ORIGINAL MANUFACTURERS OF RUBBER GOODS.

RUBBER COVERED COUCH ROLLERS FOR FOURDRINIER, CYLINDER AND WET MACHINES.
(Warranty given with each Roller).

Also make *Rubber Covered Press and Sizing Rollers, Rubber Belting, Hose, Packing, Deckel Straps,* and all kinds of *Rubber Goods for Mechanical Purposes.*

256 to 260 Devonshire St., BOSTON.
100 Chambers Street, New YORK.

And Agencies in the principal cities of the United States, Canada and Europe.

ESTABLISHED 1848.

JOHN WALDRON, NEW BRUNSWICK, N. J.,

MANUFACTURER OF ALL STYLES OF

COATING MACHINERY FOR LITHOGRAPH, LABEL, FANCY, GLAZED, BOOK AND SAND PAPERS.

Also Cardboard and Paper Hangings Machinery. Hilbers, Staib and Waldron Patent Hanging Up Machines. Patent Power Reeling Machines for Coated Papers and Cardboard. Embossing Machines, Paper Rolls, Polishing Machines, &c.

Machinery is universally used by the manufacturers of above goods in the United States and Canada.

AMERICAN SOAP AND WASHOLINE CO.,

HUGH GRAHAM, Pres. and Treas.
M. ANDRAE, Gen'l Manager.

140 to 180 Central Ave., Cohoes, N. Y.

Paper and Felt Manufacturers' Soaps.

POWDERED SOAP.

WASHOLINE A SPECIALTY, for Washing Felts.

SEND FOR GLASS PAPER WEIGHT CALENDAR.

IMPROVED MACHINES FOR MAKING

SQUARE PAPER BAGS.

By our PATENT methods of obtaining slack paper, severing bag lengths and applying paste, we are enabled to make perfect bags at a speed not attained by any other machine on the market. For full information and prices address

The Diamond Paper Bag Co.,
WILMINGTON, DEL., U. S. A.

E. F. WIECKERT

25 Water St.,
NEENAH, WIS.,
MANUFACTURER OF
COGS
AND ALL KINDS OF
MILL WORK.

You will save money if you have no cog pattern by drawing a cog out of a wheel, marking the exact width on the face cut and the exact thickness on the end cuts of this diagram and sending to me. If you want one key seat only, mark off one when you send card for pattern. I carry a complete stock of seasoned Hard Maple and can make Cogs on short notice. When you write for price give width and thickness of larger end. Write for pattern cards.

NOW IN PRESS.

Chemistry of Paper Making.

—BY—

R. B. GRIFFIN and A. D. LITTLE.

The most elaborate and practical book on the subject ever written.

OCTAVO, ABOUT 550 PAGES.

FULLY ILLUSTRATED.

This work has been in preparation for several years and will be ready for delivery at an early day.

PRICE $5.00, POST PAID.

Subscriptions will be filled in order of receipt.

CONTENTS.

INTRODUCTION.

General Laws of Chemistry: Principles of Chemical Physics; Chemical Arithmetic.

PART I.

General Chemistry.—With a short account of each element and its principal compounds; source, manufacture and properties of such compounds as are used in paper making.

PART II.

CHAPTER I.—**Cellulose.** Its chemical and physical properties, chemical relations and reactions.

CHAPTER II.—**Fibres.** Cellulose in its relations to the plant; the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres; growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Rosin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with reference to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

APPENDIX.—Metric system; tables of specific gravities; strength of solutions; list of sulphite patents, &c.

Address all orders to the publishers,

HOWARD LOCKWOOD & CO.,
126 & 128 Duane Street, New York.

THE UNITED STATES CHEMICAL CO.,

No. 1 South Front Street, Philadelphia.

CORRESPONDENCE SOLICITED.

ALUM

U. S. Refined Alum, Neutral,
U. S. Refined Alum, Basic,
U. S. Refined Alum, Acid,
and ALUM CAKE.

PURE ALUMINA.
DOUBLE REFINED ALUM.

International Ultramarine Works

(LIMITED)

71 & 73 DUANE STREET, NEW YORK.

Works,
Rossville, Staten Island. P. O. Box 2553.

A. KLIPSTEIN & COMPANY,

122 Pearl Street, New York.

BRANCH OFFICES: 120 Arch Street, Philadelphia; 134 Milk Street, Boston; 134 Michigan Street, Chicago.

ANILINE COLORS.

O'KEEFE & ORBISON,

ARCHITECTS,

APPLETON, WIS.

PAPER, PULP AND FIBRE MILLS.

WM. PICKHARDT & KUTTROFF,

98 Liberty Street, New York,

BRANCHES AT BOSTON, PHILADELPHIA, PROVIDENCE AND CHICAGO,

—IMPORTERS OF—

Aniline Colors, Carmine, Pulp Colors, Ultramarines.

LIQUID CHLORINE.

Schoellkopf Aniline and Chemical Co.,

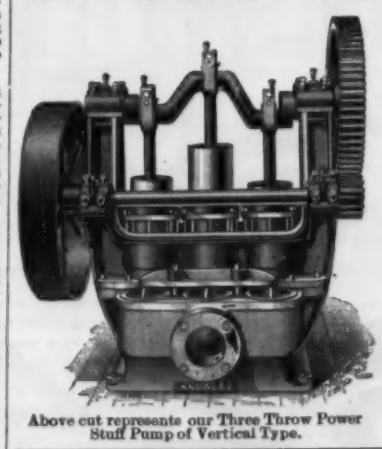
BUFFALO, N. Y.

We make a specialty of Colors for Paper Makers' use and will match any sample submitted to us.

CORRESPONDENCE SOLICITED.

BOSTON: 103 MILK ST. NEW YORK: 3 CEDAR ST.
PHILADELPHIA: 50 NORTH FRONT ST.

KNOWLES STEAM PUMP WORKS,



Above cut represents our Three Throw Power Stuff Pump of Vertical Type.

Builders of every known variety of

Pumping Machinery.

STEAM and POWER,
SINGLE and DUPLEX,
VERTICAL or HORIZONTAL
PUMPS for

PAPER AND PULP MILLS

A SPECIALTY.

Stuff Pumps, Vacuum Pumps for Suction Boxes, Pumps for Aerophor Dampeners, Automatic Pumps and Receivers, Air Pumps and Condensers, Boiler Feed.

SEND FOR NEW ILLUSTRATED CATALOGUE.

183 DEVONSHIRE STREET, BOSTON.
93 LIBERTY STREET, NEW YORK.
163 SO. CANAL STREET, CHICAGO.

F. GRAY, President.
W. C. GRAY, Treasurer.

PIQUA WOOLEN MILLS,

F. M. ATTERHOLT, Vice-President.
H. C. NELLIS, Secretary.

THE F. GRAY CO., Piqua, Ohio,

MANUFACTURERS OF

Fourdrinier, Harper and Cylinder

FELTS,

Press Felts and Jackets for all Kinds of Paper.

TRY OUR HARPER FELTS. They are the BEST MADE for all grades of paper.

Holyoke.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., April 26, 1894.

Trade this week shows very few indications of change. The movement of goods has not increased to any apparent extent, and business presents the same attitude of quietness which has ruled for some time. None of the mills are producing any more paper than is necessary, and the storehouses are not filling up very rapidly.

Some grades of paper are more sought and some mills probably have more orders on hand than others, but, as a whole, trade is dull. Some indications of improvement have been noticed occasionally, but they have had no lasting qualities. The opinion prevails with most manufacturers that there will be no lasting improvement in business until our legislators at Washington get through tinkering with the tariff.

The Holyoke Water Power Company is still considering the plans for the proposed new dam to be built just below the present one. The engineers have been at work on the plans for some time, and they have been referred to the directors once only to be modified. Nothing definite will be done at present, as the water is too high to make the preliminary work practicable.

The dam will cost not far from $1,000,000 when finished, and will be one of the finest structures of its kind in the country. It will be made of solid granite, and will be capable of resisting the severest strain. That a new dam is needed is proved by the leaks, big and little, in the existing structure, which make themselves felt from time to time. The company has been accumulating a fund for a number of years with which to build the new dam.

The smallpox has not spread to any extent since last week, and only a few new cases have been reported. These were removed to the hospital promptly and the houses where the victims lived have been quarantined. Chicopee continues to develop new cases, and the disease has appeared at Mittineaque. The near approach of warm weather ought to put an end to the disease.

The Whiting Paper Company has established its Chicago branch house at 238 and 240 Adams street, where its Western business will be conducted. The company will handle its own products only, and without doubt its many Western customers will find the new house very convenient from which to order goods when needed.

J. W. Toole, superintendent of the Riverside Paper Mills, has the sympathy of many friends because of the death of his bright little three year old daughter, which occurred this week.

The finishing department of the Carew Paper Company, which has been idle for a week or more, was started on full time this week.

A force of twenty men began work this morning on the excavations for the addition to the Holyoke Opera House. The improvements will be pushed during the summer, and when the theatre reopens in the fall it will be one of the most beautiful in this part of the country. Casper Ranger has the general contract for the work.

John C. Newton, of this city, is treasurer of the Carribean and Montezuma Mining Company, of Ophir, Col., and he is giving much of his time to his new business. The mine has been worked quite profitably of late, gold having been mined in fair quantities. Mr. Newton is extending the mines and hopes for better results later.

The water on the dam and on the river is considerably higher just now than at any time during the season. The snow north of us has melted and the river is about as high as it will be this spring. Last year the water did not reach its greatest height until May 10, but the season is earlier this year. H.

Boston.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, April 26, 1894.

April is drawing to a close, but the hopes of those who expected that the month would develop a large increase in the movement of paper have not been realized.

Improvement over last month's business is reported in some quarters; but the volume of trade is far from being satisfactory.

Summer is not far distant, when business will again drag, and not until fall is trade likely to become active. Should a little boom develop, then it will certainly be most welcome.

A change in the price list of bags has been made by the Union Bag Company.

For some fifteen years the paper bag interests have been working under one list, which, when first established, was subject to discounts of 25 and 10 and 10 per cent.; but, with the lessened cost of production and severe competition, discounts were increased to 60 and 10 and 5 per cent.

With the view of ascertaining what effect this change in the price list would have on the trade, and what action, if any, the S. O. S. Bag Company would take in the matter, your correspondent interviewed Mr. Forsyth, of Stone & Forsyth, in relation to the change in price list, their firm being the New England agent for the S. O. S. Bag Company.

Mr. Forsyth gives it as his opinion that the trade is as satisfied now with the old list as at any time in the history of the bag business, and he sees no good reason for changing the list except from the fact that the Union Bag Company has suffered from the inroads made upon its trade by the S. O. S. Bag Company, and so has adopted this means of attempting to give the idea to consumers and dealers that the price of bags has been further reduced, while the fact remains that the price under the new list, with its discounts, will net just the same as before. Mr. Forsyth does not think that dealers will receive the new list with favor, as the old list has been in use so long that dealers are familar with the prices and have the figures thoroughly in mind. The establishment of a new list, he says, must cause annoyance and misunderstanding, to say nothing of the time lost in figuring out the new discounts to get at the net results only to find that the net prices are just the same as heretofore. Mr. Forsyth calls attention to the fact that the old price list is in round numbers while the new list is made up mostly of odd numbers, making it more troublesome to figure the discounts. Mr. Forsyth is authority for the statement that the S. O. S. Bag Company, which his firm represents, will not for the present make any change in its price list, believing that it is more convenient for its customers and the general public to retain the old price list and scale of discounts with which they are so conversant. Mr. Forsyth says that the present demand for the S. O. S. bag is "immense," and that the factories are running until 10 o'clock every night, and yet the company is unable to fill the orders which come to hand.

Charles A. Dean, of the Hollingsworth & Whitney Company, who controls the product of the Union Paper Bag Company in this market, was seen in relation to the matter. Mr. Dean said that he could not understand why anybody should feel aggrieved because the Union Bag Company had seen fit to make a new price list when the net prices were in no way affected; discounts had been so increased that the old price list looked ridiculous, and it was thought advisable to make the change. When the old price list was made discounts were 25 and 10 and 10 per cent., which made the net price on $2 bags, say, about $1.22 per thousand, but when this same bag was sold at 60 and 10 and 5 per cent. off the net price was only about 68 cents, and the difference between the net price and the list price was really ridiculous. So the Union Bag Company revised the list without changing the net results. That is all there is to the story.

While talking with Mr. Dean, I made some inquiry concerning his company's big mill, the Taconnet, at Winslow, Me. Mr. Dean said that the big mill was running full time and producing the record book, the product for February, a short month, was 740 tons; during March the product was 850 tons, and so far during April the output was averaging about 30 tons per day—not a bad showing for the new mill in times like the past few months. Then, besides that product of manilla paper, the mill is producing 40 tons of ground wood pulp daily. Mr. Dean stated that since he returned from Florida, business had improved a little.

Col. E. H. Haskell left for Europe some days ago to be absent four or five weeks.

Charles Pierce, formerly with the Bowdoin Paper Manufacturing Company and with the old Denison Paper Manufacturing Company, visited the Boston trade last week. Mr. Pierce is one of the pioneers of the paper making business, and his many friends here were pleased to "greet the old man man with a smile."

Sam Rust, of Holyoke, was in town this week looking for a lawn mower, which he couldn't find. What the boys want to know is: Where did Sam get that outlandish cap?

J. H. McCormick, representing the International Pulp Company, of New York, was here last week, his first visit to Boston for a long time. He got an old time welcome.

Other recent visitors were Eben C. Webster, of Bangor, Me.; Charles R. Milliken, of Portland, Me.; P. K. Allen, W. H. Faunce and W. G. Alden, of Camden, Me.; E. L. Gedney, of Jay, Me.; J. W. Flint and F. G. Flint, of Bellows Falls, Vt.; Charles Wheelwright, of Sunapee, N. H.; E. S. Daniell, of Franklin, N. H.; Oscar Hartwell, of Nashua, N. H.; P. L. Bassett, of Lowell, Mass.; Charles Mayo, of Lawrence, Mass.; W. H. Godfrey, of Lynn, Mass.; Hon. Wellington Smith, Mr. May and Geo. K. Baird, of Lee, Mass.; John D. Carson, of Dalton, Mass.; Geo. E. Crafts, of Holyoke, Mass.; Ed. Bill, W. D. Glinn and Ed. Glinn, of Springfield, Mass.; Mr. Williams and Charles S. Barton, of Worcester, Mass.; W. M. Kimball, of Mittineaque, Mass.; C. H. Southworth, of South Hadley Falls, Mass.; P. Garvan, of Hartford, Conn.; W. H. Pusey, of Windsor Locks, Conn.; S. B. Hutchinson, of Bridgeport, Conn.; T. E. Barnes, of Plantsville, Conn.; S. C. Haner, of Chatham Centre, N. Y.; I. C. Blandy, of Schuylerville, N. Y.; C. H. Mortimer, Peter Dish and W. V. Hitchcock, of New York.

Charles A. Cobb has connected himself with the A. Storrs & Bement Company and will represent this company on the New England road, handling white papers and flats.

H. B. Brooks, Carter, Rice & Co.'s Chicago manager, is spending a part of this week in Boston.

Albert F. Colburn, formerly treasurer of the Wait's River Paper Company, of Bradford, Vt., has taken a partnership interest in the Thorp & Martin Company, stationer and blank book manufacturer, of this city.

Charles D. Brown & Co. have preserved in a glass case hanging upon the wall just behind Charles A. Brown's desk in the front office, a souvenir of the early chemical fibre business. The piece of sulphite pulp thus preserved is about the size of a man's hand, and on the case hangs a placard with these lines: "Sulphite pulp, made from Swedish fir by the Ekman process at Bergvik, Sweden, 1882; part of the first invoice brought into this country prior to the formation of the Richmond Paper Company, at Providence, R. I."

The Master Printers' Club, of Boston, held its seventh annual meeting on Tuesday evening at Young's Hotel. The following named officers now serving were re-elected: President, J. Stearns Cushing; vice-president, Thomas Todd; secretary, Louis A. Wyman; treasurer, Frederick Mills.

Among the guests of the club were J. Richard Carter, president of the Boston Paper Trade Association, and James B. Forsyth, the secretary, both of whom had occasion to address the meeting in response to requests from Commodore Cushing, who presided. There was a very large gathering, and among the guests were many gentlemen of prominence in the ranks of the printing and allied trades, Stephen O'Meara, of the Boston *Journal*, being one of them. As is customary with the master printers when they gather about the festive board, they made the evening very enjoyable for everybody there. DELESDERNIER.

Northern New York.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., April 26, 1894.

The destruction of one of the principal business blocks in the city was the chief incident in business circles this week. The steam fire alarm of the St. Lawrence Paper Mills sent in the first summons, but before the department responded the fire had gained too great headway and the destruction was complete.

Frank J. Peck began an action in the Supreme Court against the Dexter Sulphite Pulp and Paper Company to recover $600. Peck had entered into a contract with the company to work a year, but at the end of four months he was discharged, and now claims the $600 as the amount due him for his services. He removed to Palmer, Mass., and failed to give bonds for the costs of the action, required by his change of residence, and so lost his standing in court. Peck's attorney, Elon R. Brown, has made an application to Justice Williams to open the default and it has been granted on the payment of $10 costs. The case will be tried at the May Circuit Court.

Mr. Drewsen, superintendent at the sulphite mills in Dexter, had a decided surprise this week. A cable from Norway told him to expect his brother, Dr. V. Drewsen and another person to make him a visit. Mr. Drewsen is a bachelor and lives sumptuously in an elegant home in Dexter with Mr. Ling, his assistant chemist, as a companion, and when his brother arrived, accompanied by a charming young bride, Mr. Drewsen was surprised. The surprise was doubled when Mr. Drewsen's younger brother, who has been in charge of a large sulphite plant in Australia for the past two years, arrived on the scene, and the bachelor host has been doing all in his power to do justice to the occasion in his own sumptuous way.

The Taggarts Paper Company, of Felt's Mills, has leased the finishing room and machinery for cutting paper of the Great Bend Paper Company. It is behind in its orders, and will keep its men busy finishing paper at Great Bend until its own finishing room at Felt's Mills is completed.

J. R. Barling, an employee at the C. R. Remington & Son's mills, had his right foot crushed between an elevator and a floor. The foot will probably have to be amputated.

John W. Griffin and Frank H. Munson, of Watertown, are in Hailesboro appraising the damage done by fire in the Adirondack Talc Mill.

H. C. Dexter is absent on a business trip to New York and Boston.

The death of Helen Remington, wife of A. D. Remington, occurred here at the family residence on Clinton street, on Wednesday morning at 10 o'clock. The deceased had been in failing health for some time. With her husband she visited the Pacific Coast, hoping that a warm climate would benefit her. Mr. and Mrs. Remington returned last Saturday in a private car, so critical had the lady's condition become. Mrs. Remington was born in Belleville, July 21, 1829. Her maiden name was Helen Houghton. The funeral will be held on Friday afternoon from the family residence, the Rev. William H. Brown, of Grace Episcopal Church, officiating. The remains will be taken to Belleville for interment.

Byron Everett, an employee of the Taggart Brothers' Company's paper mills, at Felt's Mills, had the index finger of his right hand taken off in the calenders of a paper machine on Wednesday. Dr. Sylvester dressed the injured member. W. E. T.

Double Taxation.

The legislature of Massachusetts now in session is seriously engaged in discussing the problems of taxation, and many bills have been presented which seem to be detrimental to the industrial and commercial interests of the State. Some of these bills seeking to become laws have awakened considerable public interest, so much so that the business organizations of the State have found it necessary to consider the proposed acts of legislation and to enter their protests against the enactment of some of the laws on taxation proposed. The Boston Paper Trade Association, which fittingly represents the paper manufacturing industry of the State as well as its commercial and business interests has placed itself on record as being opposed to these bills as is set forth in the following communication:

THE BOSTON PAPER TRADE ASSOCIATION.

OFFICE OF THE SECRETARY, 268 DEVONSHIRE STREET, BOSTON.

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts, in General Court Assembled.

The Boston Paper Trade Association, with a membership of 108 individuals, embracing representatives of all the large manufacturers of and dealers in paper, does hereby respectfully and emphatically protest against certain proposed bills now before your honorable body, in relation to taxation, viz.,

A bill to compel foreign corporations having places of business in this Commonwealth to file lists of shareholders.

A bill to compel sworn lists of all property and business incomes under penalty of imprisonment.

A bill to reimpose the tax on real estate mortgages, as being detrimental to the interests of this State.

While the effect of the passage of these bills might lead to a temporary increase in tax receipts, it is our firm belief that the ultimate result would cause a heavy loss by the driving away of large amounts of taxable property to more favored localities.

In addition, we wish to say that the bill which we understand has been introduced, viz., "To relieve from taxation shares of corporations which are organized and taxed elsewhere," has our hearty indorsement and approval, it being, in our judgment, an act of simple justice that property should be taxed but once.

BOSTON PAPER TRADE ASSOCIATION,
By its Executive Committee,
JAMES B. FORSYTH, Sec.

New Patents.

No. 511,659. Machine for Molding Paper-Stuff Boxes. — Paul Sohège, Paris, France.

W. W. Ruley, of the Bureau of Anthracite Coal Statistics, estimates that the unmined coal in Pennsylvania aggregates 4,684,000,000 tons, located in an area of 213,000 acres. He thinks if the yearly average of consumption continues at 44,000,000 the fields will have become practically extinct in 167 years. Things are more encouraging in Ohio, where the State geologist has been carefully studying the coal capacity of the mines. Putting the annual demand at 25,000,000 tons, he thinks it would take 1,000 years to exhaust the fields already known.

The United States Post Office Department rules that the writer has a right to the possession of a letter provided he can prove to the satisfaction of the postmaster at the office from which it was sent that he was the writer of it. Even if the letter has arrived at its destination and before it has been delivered to the person to whom it was addressed, it may be recalled by the writer through the mailing office. The reason assigned is that the United States is only the agent of the writer while the letter is in transit. This decision is important to business men and to private individuals.

Smokeless Combustion of Coal.

The problem of the smokeless combustion of coal seems at least to be solved by a new process which is exciting a sensation in Berlin, Germany. The patent has been taken out by a company, which has already made contracts with a number of large commercial and industrial concerns—among others with the North German Lloyd, the Hamburg-American Packet Company and the Vulcan Works at Stettin—for the introduction of its new system of firing.

In the construction of their new firing apparatus the patentees have departed from all the methods hitherto employed. The coal is no longer burned in lumps, but is reduced to powder by means of the ordinary centrifugal mills. The new system, which is called "automatic and smokeless coal dust firing," is extremely simple. At the place where hitherto the coal was introduced into the fire grate, that is to say at the furnace door, there is a movable pear shaped apparatus, consisting principally of a fire chamber lined with firebrick. One aperture of this hollow pear opens in the direction of the axis of the boiler into the mouth of the hitherto employed furnace, from which the fire grates, fire bridges, &c., have been removed. The opposite aperture of the hollow pear is intended to admit a current of air.

By means of an ingenious automatic contrivance coal dust is supplied through a funnel placed above the current of air, and thence into the fire chamber, where it is immediately brought into combustion by means of the small fire which is placed there. When this has once taken place, the coal dust conveyed by the current of air continues to burn in one regular intense flame. The current of air which brings the coal dust into the apparatus is regulated so as merely to convey the dust thither, whereas the further supply of air necessary for combustion is sent into the zone of combustion at right angles and in radiating jets. By this arrangement the coal dust and the air in the zone of combustion are intimately and thoroughly mixed, while the speed of the current which introduces the coal dust is diminished.

It will thus be seen that the combustion of the coal which this method produces is extremely thorough, for each particle of fuel floats in the air and is brought into contact with the oxygen necessary for its combustion, so that it is totally consumed the moment it enters the sphere of combustion. The proof of its being totally consumed is seen in the fact that not even a trace of smoke is perceptible.

It may also be mentioned that air introduced into the sphere of combustion may be previously heated to a high degree by means of the escaping hot gases. By this system of continual and automatic supply the influx of cold air into the burning fuel is totally obviated, and the amount of fuel employed is no longer dependent on the will or the whim of a stoker.

With the pressure of a finger the supply of coal dust and of draft can be perfectly regulated, and thereby an equable generation of heat may easily be secured. Among the further advantages of the new system of firing may be mentioned the diminished wear and tear of steam boilers, the absence of fire grates and fire bridges, the ability to start or to stop the fire instantaneously, the absence of heaps of cinders and ashes, and the avoided necessity for high chimneys. It is further claimed that the method of firing is suitable not only for steam boilers, but also for all kinds of heating, welding, smelting and burning processes, that it can be used in all sorts of manufactures, and that by it not only ordinary coal, but also brown coal, charcoal, turf powder, &c., may be burned.—*London Standard.*

A cement of specially valuable properties for steam pipes, in filling up small leaks, such as a blow hole in a casting, without the necessity of removing the injured piece, has been compounded. The cement in question is composed of 5 pounds of Paris white, 5 pounds of yellow ochre, 10 pounds litharge, 5 pounds red lead and 4 pounds black oxide manganese, these various materials being mixed with great thoroughness, a small quantity of asbestos and boiled oil being afterward added. The composition, as thus prepared, will set hard in from two to five hours, and possesses the advantage of not being subject to expansion and contraction to such an extent as to cause leakage afterward, and its efficiency in places difficult of access is of special importance.

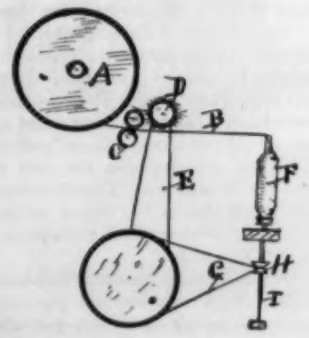
In the new alloy, promethium, there is said to be 60 per cent. of copper, 38 per cent. of zinc and 2 per cent. of aluminum. These metals are melted together and sodium or other flux capable of oxidation at the temperature of the mixture is stirred in. The tenacity of the metal and its resistance to the action of water or air are increased by the addition of the sodium.

New Inventions—XXXII.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

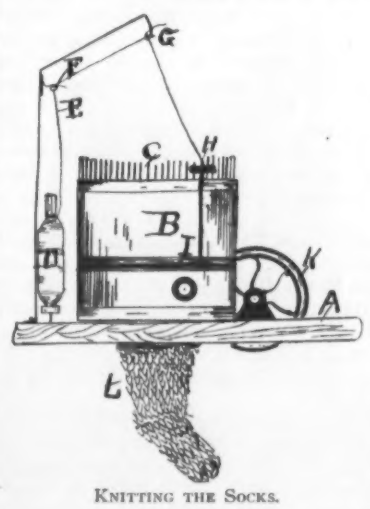
By Geo. Damon Rice.

Now a man comes forward and says that he is going to make stockings from paper so cheaply that they can be sold for 3 cents per pair. He also adds that the new stockings are so light and airy when made from paper material that they are very much more comfortable in the summer time than any other kind. Some of these paper stockings have already been made, and in their finished and dyed state look pretty much like ordinary stockings, and as there is undoubtedly a field for the sale of these goods, a short description of them may be interesting to paper mill men. I have visited the establishment in which the experiments have been carried on during the past several months, and was shown numerous samples of stockings made entirely of paper, and some of them were as nice looking as one could wish. The stockings are knit from paper yarns. The paper yarns are made pretty much after the plan of making common paper twines, except that the yarns are put through certain special processes. The principle is that of making a sort of a nap on the yarns. This is done automatically. Ordinary paper twine or yarn is too smooth; but a good gigging up on the raising machine gives the yarns a nap or fuzz, and this imparts softness to the texture. A view of this automatic raising or napping machine is shown below, in which a thread of yarn in process of being napped is exhibited.



Napping the Paper Yarns.

The cut shows the spool A, upon which are numerous yarns of paper. One strand is shown going through the rollers C, and these guide it through the rapidly revolving teeth of the roller D, which is driven by the belt E, and its turns are quick. The teeth set in it raise a nap on the yarns. The yarn is marked B and is always unwinding from the spool A onto the bobbin F. This bobbin is turned by means of the belt G, which circles about the whirl H on the



Knitting the Socks.

spindle I. After napping the yarns they are ready to be made into socks. This is done on a knitting machine.

In this drawing the cylinder of the knitting machine, designated B, rests on the wooden stand A. In this cylinder are the needles C. The paper bobbin of yarn is marked D. The yarn in its trip from the bobbin to the guide F, then to the guide G and down to the carrier H, is designated E. There is a rim cam circling the main cylinder B, and this is indicated by the letter I. Its misssion is to guide the carrier H. Thus, when the operator turns the wheel K, motion is given to the machine, the carrier H goes around and delivers the yarn to the needles C, and the latter knit the yarns into a sock, just as is done in the regular knitting machine. The partly knit sock illustrated in the cut is designated L.

After knitting the stocking is dumped into a bath of sizing made from potato starch and tallow, and this imparts solidity and durability to the texture. Now the socks are ready for wearing. They are particularly adaptable for use in hot weather. Then the great cheapness of the stockings is an important point. Three cents a pair is ridiculously low, but the promoters of the scheme promise that they can turn out good, substantial socks for men and boys which shall sell at a profit for 3 cents per pair.

Of course it is the cheapness of the material used which makes the socks cheap. Woolen and even cotton yarns cost money; so do those made from paper, but the cost of the latter is so much less that the saving is great indeed.

The Discoverer of Steam Power.

Solomon Caus, a Normandy scholar who lived in 1576 and thereafter wrote many scientific works, all of which led up to his conception of an idea which resulted in the transformation of his whole life into a tragedy. After pestering the King and the Cardinal at Paris he was ordered to be taken to Bicetre, the madhouse, and there shut up. This was done. They had just one way with mad people in those days. They shut them in iron cages and fed them through the bars like wild beasts. They did this to Solomon Caus. For a long time he stood behind those bars all day and called to those who would listen, and to them repeated the story he had told the Cardinal. He became the jest of the place. Some of them gave him writing materials, and then, amid the misery of his surroundings, he wrote down his ideas and amused his jailers so much the more. However, it could not be long before such a life, such surroundings, would shatter any brain. In time Solomon Caus was as mad as everyone believed him.

It was in 1624 that an English nobleman, Lord Worcester, went to Paris and visited Bicetre. As he was passsing through the great court, accompanied by the keeper, a hideous face with matted beard and hair appeared at the grating, and a voice shrieked wildly, "Stop! stop! I am not mad, I am shut up here most unjustly. I have made an invention that would enrich a country that adopted it." "What does he speak of?" the Marquis asked his guide. "Oh, that is his madness," said the man laughing. "That is a man called Solomon Caus. He is from Normandy; he believes that by the use of steam of boiling water he can make ships go over the ocean and carriages travel by land; in fact, do all sorts of wonderful things. He has even written a book about it, which I can show you." Lord Worcester asked for the book, glanced over it, and desired to be conducted to the cell of the writer. When he returned he had been weeping. "The poor man is certainly mad now," he said; "but when you imprisoned him here he was the greatest genius of the age. He has certainly made a very great discovery."

After this Lord Worcester made many efforts to procure the liberation of the man, who doubtless would have been restored to reason by freedom and ordinary surroundings, but in vain; the Cardinal was against him, and his English friends began to fancy that he himself had lost his senses, for one wrote to another, "My lord is remarkable for never being satisfied with any explanations which are given him, but always wanting to know for himself, although he seems to pierce to the very centre of a speaker's thoughts with his big blue eyes that never leave theirs. At a visit to Bicetre he thought he had discovered a genius in a madman, who declares he will travel the world over with a kettle of boiling water. He desired to carry him away to London that he might listen to his extravagancies from morning to night, and would, I think, if the maniac had not been actually raving and chained to the wall."

Thus, in Bicetre died the man to whom, after his works were published, many people gave the credit of being the discoverer of steam power, and it is said that from the manuscript written in his prison Lord Worcester gathered the idea of a machine spoken of as a "water commanding engine," which he afterward invented. Historians have denied that Caus died in prison, but there exists a letter written by Marion de Lorme, who was with Lord Worcester at the time of his interview with Caus, which established the fact beyond doubt.—*Invention.*

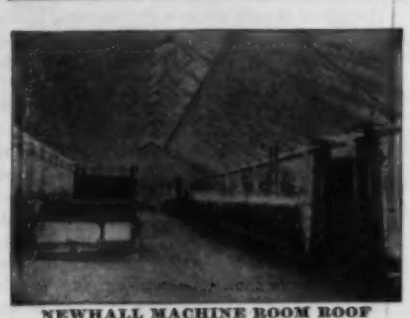
Wasting Natural Gas in Indiana.

"The waste of gas in the Indiana gas belt is a downright shame, and should be stopped," said Henry A. Smithson last night. "I have just finished a trip through Indiana. At all the small towns gas pipes stand erect with tongues of flame darting from them, making the surrounding country almost as light as day. Thousands of feet of gas are monthly wasted in this manner. If proper gas fixtures had been put in at a small cost much valuable lighting gas would have been saved. We hear frequently that in certain localities gas wells have given out. Is there any doubt of it? These people who had wealth at their doors are deliberately wasting it in the exuberance of spirit over the boom it brought to their towns. Without this gas the boom must collapse. It takes this gas, figuratively speaking, to keep the boom balloon in the air. It is a shame that such a waste is tolerated."—*St. Louis Globe-Democrat.*

The production of aluminum has already outstripped that of nickel and bids fair to soon rank in its output with zinc, lead and copper. The production in the United States for 1893 was 559,130 pounds, or more than double the output for 1892 and nine times that of 1890. This country produces about 25 per cent. of the world's output of aluminum.—*Industrial World.*

Wood Pulp, Soda AND Sulphite,
IMPORTED BY
G. RAU, TIMES BUILDING, New York.
SOLE AGENT FOR THE U. S. AND CANADA:
ROZÈS AINÉ & FRÈRES, Agen,
Well-known Packers of Linens and Cottons.
TRADE MARK

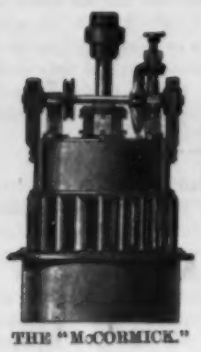
MOOSEHEAD PULP
UNIFORMITY, CLEANLINESS, STRENGTH, COLOR.
FOR BOOK, MANILLA, No. 1 NEWS.
PERFECT GROUND SPRUCE PULP.
MOOSEHEAD PULP AND PAPER CO., SOLON, ME.
Office, 306 Sears Building, Boston.


NEWHALL MACHINE ROOM ROOF
At W. C. Hamilton & Sons, Riverside Paper Mills, WM. PENN P. O., PA.

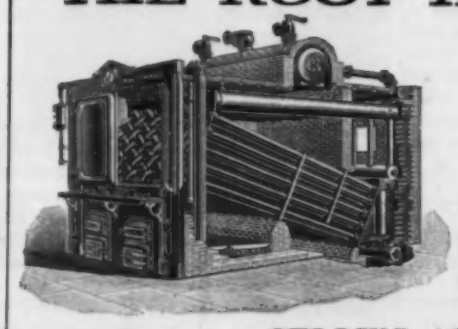
GEORGE M. NEWHALL ENGINEERING CO.,
LIMITED,
Paper and Pulp Mill Engineers
AND ARCHITECTS.
136 South Fourth Street,
PHILADELPHIA, PA.

NEWHALL STUFF CHESTS
At W. C. Hamilton & Sons, Riverside Paper Mills WM. PENN P. O., PA.

THE THROOP PERFORATING CO.
SHEET METALS
OF ALL KINDS PERFORATED TO ORDER FOR ALL PURPOSES,
80, 82 & 84 Terrace, BUFFALO, N. Y.

McCORMICK AND SUCCESS TURBINES,
VERTICAL OR HORIZONTAL.

THE "McCORMICK."
The McCORMICK Turbine gives more power per diameter with a higher percentage of useful effect from the water used than any other water wheel heretofore made. All sizes, both right and left hand, tested in the Holyoke testing flume.
The SUCCESS Turbine, long and favorably known in the paper trade as a first-class water wheel, possesses valuable features found in no other turbine, and gives a high percentage of useful effect from the water used.
THE McCORMICK and SUCCESS TURBINES are especially adapted for driving Paper and Pulp Mills and are extensively used by the largest manufacturers in the United States and Canada. Parties using wheels which are unsatisfactory and those contemplating the improvement of powers will find it to their interest to confer with me, as I am willing to guarantee results where others have failed, no matter what make of turbines has been tried.
State requirements and send for catalogue.
Heavy Power Transmitting Machinery a Specialty.
S. MORGAN SMITH, York, Pa.

THE "SUCCESS."

THE ROOT IMPROVED
WATER TUBE BOILER.

SAFE! ECONOMICAL! DURABLE!
IN USE BY
Remington Paper Co., . Watertown, N. Y.
Atlas Paper Co., . . Appleton, Wis.
Shattuck & Babcock Co., . De Pere, Wis.
Kimberly & Clark Co., . . Neenah, Wis.
Telulah Paper Co., . Appleton, Wis.
Watertown Paper Co., . Watertown, N. Y.
Fonda Lake Paper Co., . Port Leyden, N. Y.
Otis Falls Pulp Co., Livermore Falls, Me.
SELLING AGENTS:
C. E. ASHCROFT, . . . Boston, Mass.
W. H. SMITH & CO., . . . Chicago, Ill.
JAMES G. COOPER, . . Cincinnati, Ohio.
MORTON, REED & CO., . . Baltimore, Md.
G. K. HOOPER, ... Rochester, N. Y.
KEATING IMPLEMENT AND MACHINE CO., Dallas, Tex.
ABENDROTH & ROOT MFG. CO., 28 Cliff St., New York.

CHAS. B. PRIDE, APPLETON, WIS.
Mill Architect and Contractor.
Specialties: PAPER MILLS AND SULPHITE FIBRE MILLS.
Plans Furnished and Mills Constructed on shortest possible notice.

ALUM!
THE MERRIMAC POROUS ALUM is unsurpassed for purity and good results.
All other grades of Alum for paper makers' use and for filtering purposes. Address
MERRIMAC CHEMICAL CO., 13 Pearl Street, Boston.

ESTABLISHED 1833. INCORPORATED 1891.
STANDARD STAVE & COOPERAGE CO.

MANUFACTURERS OF
CEDAR, CYPRESS, PINE OR OAK
RESERVOIR TANKS
Of any Shape or Capacity, for
PAPER AND PULP MILLS.
19 WHITEHALL STREET, NEW YORK. OFFICES: 160 STATE STREET BOSTON.
—Illustrated Catalogue upon Application.—

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED APRIL 20, 1894.

An. Colors..	487	$27,213	Paper.....	803	$26,051
Alum.....	—	—	Steel Pens...	2	437
Alum's Cake	—	—	Stationery...	4	189
Bl. Powders	858	14,734	Slate Pencils	1	134
Soda Ash...	4,268	12,992	Clay.....	—	1,179
Soda, Caus.	460	5,822	J'te B'ts, &c...	—	—
Soda, Sal....	300	626	P. Hangings	28	2,190
Soda, Hypo.	—	—	P'p'r Stock..	6,301	47,818
Ultramarine	189	3,015	Terra Alba..	—	—
Books.....	237	25,028	Waste.....	—	—
Newspapers.	211	7,721	Wood Pulp..	2,521	23,575
Engravings.	49	6,360			
Ink.....	254	1,762			
Lead Pencils	19	2,706	Totals....	17,082	209,552

Imports General Merchandise for the week ended April 20, 1894.....$6,279,709

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO APRIL 25, 1894.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	1,349	....	....	....	....
Antwerp.....	100	250	529	....	2,656
Aspinwall	90	....	....	....	....
Bordeaux.....	250	....	....	....	....
Bremen	532	....	....	....	2,517
Bristol.....	....	....	....	....	1,797
Buenos Ayres.	95	....	...	....	....
Calcutta.....	....	....	....	....	2,613
Cent. America	60	....	....	....	....
Christiania....	....	....	396	....	474
Copenhagen..	353	....	479	....	761
Dublin.....	....	186	....	....	....
Dundee.....	....	....	....	....	611
Dunedin.....	....	....	....	....	183
Fiume.....	....	....	90	....	....
Geestemunde.	252	....	....	....	1,309
Genoa.....	....	....	...	....	2,396
Glasgow.....	222	58	....	....	77
Gothenburg ..	....	....	52	....	....
Hamburg.....	324	108	378	....	1,460
Hiogo.....	7,119	....	....	....	....
Hull.....a	1,298	128	770	....	6,826
Kobe.....	27,285	....	....	....	....
Leghorn.....	1,220	....	....	....	....
Leith.....	....	100	....	....	....
Liverpool.....	100	660	....	....	8,666
London.....	1,830	918	20	....	5,109
Marseilles	66	....	....	....	473
Nassau	30	....	....	....	....
Newcastle	....	73	....	....	1,348
Rio.....	28	....	....	....	....
Rotterdam....	172	....	243	....	3,240
Southampton.	....	....	....	....	100
Stettin.....	2,054	....	355	....	3,083
Trieste.....	....	....	49	....	....

a. Including 347 bales cotton waste.

NEW YORK IMPORTS.

FROM APRIL 18 TO APRIL 25, 1894.

Paper Stock.

Train, Smith & Co., Chicago, Antwerp, 406 bs. bagging.
Castle & Gottheil, Rhynland, Antwerp, 120 bs. bagging.
Darmstadt & Scott, by same, 145 bs. bagging.
James Pirnie, by same, 366 bs. bagging.
G. W. Millar & Co., by same, 140 bs. bagging.
Oelrichs & Co., Gera, Bremen, 20 bs. manillas.
Train, Smith & Co., Athton, Dublin, 186 bs. papers.
G. W. Millar & Co., Galileo, Hull, 410 bs. bagging.
Train, Smith & Co., by same, 307 bs. bagging.
Darmstadt & Scott, by same, 23 bs. rags.
G. W. Millar & Co., by same, 345 bs. bagging.
Herbst Brothers, H. Bischoff, Kobe, 1,343 bs. rags.
Castle & Gottheil, Alsatia, Leghorn, 110 bs. rags.
Jessup & Moore Paper Company, Nomadic, Liverpool, 89 bs. bagging.
Perkins, Goodwin & Co., Bovic, Liverpool, 96 bs. bagging.
James Pirnie, by same, 99 bs. manillas, 180 bs. bagging.
Jessup & Moore Paper Company, by same, 83 bs. bagging.
Kugelmann & Co., by same, 178 bs. bagging.
G. W. Millar & Co., Denmark, London, 208 bs. bagging.
Geo. Stratford, by same, 780 bs. manillas.
J. Libmann & Co., Ludgate Hill, London, 28 bs. rags.
G. Rau, by same, 464 bs. rags.
Geo. Stratford, by same, 70 bs. manillas.
James Pirnie, Paris, London, 898 bs. bagging.
Augustine Smith & Co., Spain, London, 87 bs. papers.
E. Butterick & Co., by same, 53 bs. papers.
Atterbury Brothers, Cachemire, Marseilles, 25 bs. rags.
F. T. Montell & Son, Antilia, Nassau, 13 bs. rags.
Burgass & Co., Delcomyn, Rio, 26 bs. rags.
Lewy Brothers, Gothia, Stettin, 1,021 bs. bagging.
Train, Smith & Co., by same, 203 bs. bagging.

Paper.

G. W. Sheldon & Co., Chicago, Antwerp, 15 cs.
Keuffel & Esser, Rhynland, Antwerp, 1 cs.
O. F. Melvin, by same, 2 cs.
E. G. Soltmann, by same, 5 cs.
Henry Gade, by same, 4 cs.
Davies, Turner & Co., by same, 2 cs.
Kupfer Brothers, by same, 4 cs.
L. C. Wagner & Co., by same, 4 cs.
Scovill & Adams Manufacturing Company, by same, 17 cs.
W. P. Buchanan & Co., by same, 13 cs.
Kupfer Brothers, Dubbeldam, Rotterdam, 8 cs.
Kaufmann Brothers, by same, 10 cs.
E. & H. T. Anthony & Co., by same, 17 cs.
H. S. Leclercq, by same, 11 cs.
Nevius & Haviland, Germanic, Liverpool, 7 cs. hangings.
J. Dickinson & Co., by same, 38 cs. printing.
Marcus Ward & Co., by same, 4 cs.
Thorn & Walter, Anchoria, Glasgow, 1 cs. hangings.
E. & H. T. Anthony & Co., Etruria, Liverpool, 1 cs.
J. Dickinson & Co., by same, 4 cs.
G. A. & E. Meyer, by same, 7 cs.
Dennison Manufacturing Company, by same, 8 bs., 48 cs.
B. & O. Meyer, by same, 6 cs.
G. J. Kraft, Arizona, Liverpool, 2 cs.
Druckleib & Co., La Touraine, Havre, 24 cs. cigarette.
E. Fougera & Co., by same, 30 cs.
B. & O. Meyer, by same, 7 cs.
E. & H. T. Anthony & Co., Ems, Bremen, 1 cs.
L. De Jonge & Co., Rhaetia, Hamburg, 6 cs.
E. & H. T. Anthony & Co., Spain, London, 20 cs.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED APRIL 21, 1894.

Paper.

J. L. Shoemaker & Co., Switzerland, Antwerp, 12 cs.
Same, by same, 9 cs. marbled.

Paper Stock.

Order, Switzerland, Antwerp, 702 bs. wood fibre.
Bank British North America, by same, 260 bs. wood fibre.

Soda Ash.

Brown Brothers & Co., Manitoban, Glasgow, 56 cks.

Bleaching Powder.

Order, Manitoba, Glasgow, 33 cks.

Antichlor.

Order, Switzerland, Antwerp, 74 bbls.

China Clay.

Dunn Brothers, Candido, Fowey, 600 bbls.

BOSTON IMPORTS.

FROM APRIL 17 TO APRIL 25, 1894, INCLUSIVE.

Paper, &c.

Wm. Guild & Co., Catalonia, Liverpool, 5 bs. periodicals.
Clark & Roberts, by same, 1 cs. showcards.
Houghton, Mifflin & Co., by same, 2 cs. papers.
Irving & Carson, by same, 1 cs. showcards.
H. Turner & Co., Buenos Ayrean, Glasgow, 1 cs. paper hangings.
J. Dickinson & Co., Philadelphia, Liverpool, 64 cs. papers.

Paper Stock.

Train, Smith & Co., Otranto, Antwerp, 288 bs. rags.
Castle & Gottheil, by same, 317 bs. rags.
Horace Dutton & Co., by same, 332 bs. rags, 386 bs. flax waste.
Geo. W. Millar, by same, 150 bs. manillas.
True & McClelland, Venetian, Liverpool, 2 bs., 80 coils manillas.
Horace Dutton & Co., by same, 322 bs. rags, 13 bs., 201 coils manillas.
Wheelwright Paper Company, by same, 237 bs. waste paper.
C. A. Cheney, Sagamore, Liverpool, 20 bs. cotton waste.
R. H. Overton & Son, by same, 275 bs. manillas.
True & McClelland, by same, 37 bs. waste paper.
True & McClelland, Lake Winnipeg, Liverpool, 71 bs. waste paper.
Train, Smith & Co., Prussian, Glasgow, 174 bs. waste paper.
Train, Smith & Co., Buenos Ayrean, Glasgow, 140 bs. waste paper.

Sizing.

Train, Smith & Co., Sagamore, Liverpool, 545 bags.
C. A. Cheney, by same, 264 bags.
Thomas Groom & Co., by same, 70 bags.
J. W. McClintock, Catalonia, Liverpool, 359 bags.

Bleaching Powder.

J. L. & D. S. Riker, Sagamore, Liverpool, 174 cks.
J. L. & D. S. Riker, Philadelphian, Liverpool, 198 cks.
Linder & Meyer, Lake Winnipeg, Liverpool, 54 cks.
Linder & Meyer, Buenos Ayrean, Glasgow, 22 cks.
A. Klipstein, Otranto, Antwerp, 96 cks.
Mason, Chapin & Co., by same 52 cks.

Soda Ash.

Warren & Co., Sagamore, Liverpool, 44 cks.
J. L. & D. S. Riker, Philadelphian, Liverpool, 14 cks., 880 bags.
Linder & Meyer, Lake Winnipeg, Liverpool, 77 cks.

Caustic Soda.

Edward Hill's Son & Co., Sagamore, Liverpool, 200 drums.
William Patterson & Co., by same, 50 drums.

Soda Crystals.

Warren & Co., Sagamore, Liverpool, 140 bbls.

Crude Sulphur.

Linder & Meyer, Philadelphian, Liverpool, 1,336 bags.

China Clay.

True & McClelland, Lake Winnipeg, Liverpool, 154 cks.

EXPORTS of Paper, &c., from New York for the Week Ended April 24, 1894.

BOOKS, cases, to British Australasia, 3; Central America, 2; China, 1; Mexico, 31; Peru, 31; Siam, 1; Venezuela, 4; Asia, 1; Azores, 2; Bremen, 3; British West Indies, 7; Chili, 9; Ecuador, 1; Liverpool, 22; London, 45; Southampton, 2.

PAPER, to Cuba, 1,148 pkgs.; British West Indies, 75 pkgs.; Central America, 15 cs.; British Australasia, 77 pkgs.; Hamburg, 146 cs.; Mexico, 268 pkgs.; Venezuela, 8 cs.; Hayti, 3 cs.; New Brunswick, 3 cs.; New Zealand, 2 cs.; Siam, 16 cs.; Aberdeen, 20 rolls; Colombia, 132 pkgs.; Bremerhaven, 20 cs.; British East Indies, 2 cs.; Brazil, 472 pkgs.; Dutch West Indies, 3 pkgs.; Gothenburg, 2 cs.; Hull, 1 cs.; Liverpool, 42 cs.; London, 275 pkgs.; Porto Rico, 522 pkgs.

STATIONERY, cases, to Cuba, 7; Colombia, 6; London, 29; British West Indies, 6; British Australasia, 12; Central America, 14; Venezuela, 6; Hamburg, 2; Dutch West Indies, 2; Hayti, 1; Mexico, 7; Porto Rico, 6; San Domingo, 1; Nova Scotia, 2; Newfoundland, 5; Siam, 1; Aberdeen, 1; Asia, 1; Bremen, 3; Brazil, 17; Christiania, 2; Copenhagen, 1; Gothenburg, 1; New Brunswick, 1.

CARDBOARD, cases, to Venezuela, 1.

STRAWBOARD, bundles, to Colombia 1.

AGGREGATES AND VALUES.

Paper, reams.....	—	—
Paper, pkgs.....	3,051	$7,657
Paper, cases.....	203	3,893
Books, cases.....	171	10,197
Stationery, cases.....	114	5,160
Rosin, bbls.....	5,849	16,643
Totals.....	9,388	$43,550

Exports General Merchandise for the week ended April 24, 1894..... $7,218,979

English papers describe a pipe made with a lining of tin, copper or iron wire or having a tinned or copper wire imbedded in the walls of the pipe. The wire is run off from a reel and down the centre of a mandrel, coming through an eye at a point where the mandrel passes into the die. The wire is then imbedded in the walls of the pipe as it is being made. This pipe is said to be very strong.

METAL SKYLIGHTS

Absolutely no leakage from any source; no dripping or sweating; fire-proof; ventilating.

THE CLOVER LEAF VENTILATOR FOR MILLS, FACTORIES AND DYE HOUSES.

Made of galvanized iron or copper. Strong upward draft; exhausts foul air, odors, gases, steam, etc. Perfectly storm-proof. Send for illustrated circular.

E. VAN NOORDEN & CO., 383 Harrison Ave., BOSTON, Mass.

TRAIN, SMITH & CO.,
IMPORTERS OF AND DEALERS IN
—ALL DESCRIPTIONS OF—
Paper Makers' Supplies,
24 FEDERAL STREET, BOSTON,
BRANCH OFFICES: 36 BEEKMAN STREET, NEW YORK. 21 ST. MARY AXE, E. C., LONDON. EDMUND ST. CHAMBERS, LIVERPOOL.

WM. J. CORBETT & CO.,
WHOLESALE DEALERS IN AND PACKERS OF
Woolen Rags and Paper Makers' Supplies,
86, 88 & 90 COVE ST., BOSTON, MASS.
WOOLEN RAGS GRADED IN COLORS AND QUALITY.
OUR SPECIALTIES: "EXCELSIOR" AND "STAR" PACKINGS.

ESTABLISHED 1855.
DARMSTADT & SCOTT,
—IMPORTERS AND PACKERS OF—
PAPER STOCK.
Offices: 257 Front Street. Packing House: 312 Water Street, New York.
☞ SPECIAL ATTENTION CALLED TO OUR OWN PACKING.

F. BREDT & CO.,
No. 194 Fulton Street, SOLE AGENTS FOR New York City, U. S. A.
JOSEPH PORRITT & SONS'
ENGLISH FELTINGS.
TRADE MARK.
ALSO IMPORTERS AND DEALERS IN
MARINE BLUE (Aniline) for News Paper Mills,
Jacketing, Roll Cloth, Double Extra Canvas, Ultramarine Blue.

GRIFFIN & LITTLE, PAPER MILL CHEMISTS,
Office and Laboratory: 103 Milk Street, Boston.
EXPERTS IN THE SULPHITE PROCESS AND ALL CHEMICAL MATTERS PERTAINING TO THE MANUFACTURE OF PULP AND PAPER.

TRUE & McCLELLAND,
(LATE E. A. TRUE & CO.
PACKERS AND IMPORTERS OF
Paper Stock and Wastes,
OFFICE: 64 FEDERAL STREET, BOSTON.
Foreign Packing Branches: 19 Corporation St., Manchester; 97 Park St., Liverpool.

FOSTER & BROWN, SACCARAPPA, MAINE.
MACHINISTS AND IRON FOUNDERS.
SPECIALTIES:
Improved Paper-Coating Machines; Hanging Machines and Power Reels for Coated Paper; the Merrill-Foster Noiseless Pulp Screens; Paper Slitting and Trimming Machines; Hardened and Ground Slitters; Automatic Elevators.
BUILT UNDER OUR OWN SUPERVISION.

CASTLE & GOTTHEIL,
—IMPORTERS OF—
Sulphite and Soda Pulps,
LINEN AND COTTON RAGS,
JUTE STOCKS, SIZING, &c.
140 NASSAU STREET, NEW YORK.

A. WERTHEIM & CO., Hamburg, Germany,
EXPORTERS OF ALL GRADES OF
SULPHITE AND SODA PULPS.
SIGMUND GOLDMAN, Agent for the United States and Canada, BENNETT BUILDING, 99 NASSAU STREET, NEW YORK.

The Paper Trade Journal.

DEVOTED EXCLUSIVELY TO

THE INTERESTS OF

The American Paper Trade.

Weekly, $4.00 per Annum.

Single Copies, . . . 10 Cents.

Subscription per annum and postage for Great Britain..... £1
Subscription and postage for France, per annum..... 25 francs
Subscription and postage for Germany, per annum..... 20 reichsmark

Payment for subscriptions or advertising may be made by express money order, draft, post office order or registered letter.

LOCKWOOD PRESS PUBLICATIONS.

	PER YEAR.
Paper Trade Journal, Every Saturday,	$4.00
American Stationer, " Thursday,	2.00
American Bookmaker, Monthly, . . .	2.00
American Mail and Export Journal, separate editions, English and Spanish (EL CORREO AMERICANO Y DIARIO DE EXPORTACIÓN), Monthly, . . .	3.00
Lockwood's Directory of the Paper, Stationery and Allied Trades, Annually, ...	2.00

All Pioneer Publications.

HOWARD LOCKWOOD & CO.

Publishers,

126 and 128 Duane Street, New York.

WILLIAM PINKNEY HAMILTON, Managing Partner.

Telephone—151 Franklin.

Cable Address—Catchow, New York.

BRANCH OFFICES:

Western Office—R. B. DUVALL, General Manager, 56-58 LA SALLE STREET, CHICAGO, Ill.

Boston Office—A. L. DELESDERNIER, General Manager, 67 FEDERAL STREET, BOSTON, Mass.

NEW YORK: SATURDAY, APRIL 28, 1894.

MERCHANDISE of the aggregate value of $65,900,000 was imported into the United States during March of this year, which is a falling off of $29,700,000 from the receipts of the corresponding month of 1893. The March exports make a better showing, being $68,600,000, an increase of $3,700,000 over March, 1893. On the whole these figures are encouraging.

THE purpose of the improvement in paper slitting machines illustrated and described on the first page of this issue of THE PAPER TRADE JOURNAL is to provide a better method for adjusting and operating the slitters. In this machine preference is given to a slitter blade having a square edge, and provision is made for keeping the slitter steady and without side thrust.

SOME paper manufacturers have been using coal dust, or the refuse of the mines, for making steam. One of them reports to us that his experiment has not been satisfactory, for the reason that despite every precaution and from causes unknown the dust permeates the air and works into the paper. Some recent experiments with a new process for burning coal reduced to powder will interest any manufacturer who wishes to utilize coal dust as a fuel for steaming purposes.

BRITISH imports of paper continue to increase, and to a notable degree. According to the Board of Trade returns the imports of paper into the United Kingdom during the quarter ended March 31 were over 5,283¼ tons, or 831¼ tons more than for the same period last year. On the other hand the exports show an increase; but not to a like extent, the gain in quantity shipped abroad being 397¼ tons. This ought to be, we think, a very unsatisfactory exhibit for the paper manufacturers of Great Britain and Ireland.

AN English contemporary is authority for the statement that Dr. Kellner, well known in connection with the manufacture of chemical fibre, has developed a process for the manufacture of cellulose in which certain gases, notably nitrous acid, nitric oxide, &c., are brought into contact with the wood or other material to be operated upon. The result is said to be the loosening or weakening of the incrusting substances, which are otherwise finally removed by means of a weak alkaline solution in the beating engine or other machine in which the stock may be operated upon. No figures as to cost or expediency are given. This reminds us that some time ago there was talk of a process for making fibre in which nitric acid was to play an important part. This originated in Maine and was attributed to a mystically gifted woman. What has become of it?

THE sub-committee of the House Committee on Commerce, which has been considering the many Inter-State Commerce bills referred to it by the House of Representatives, has, it is said, decided to report a bill permitting pooling of railway passenger and freight traffic. It is proposed, however, to make all such agreements subject to the approval and oversight of the Inter-State Commerce Commission, and no change or amendment can be made without its consent. This has the appearance of a step backward to objectionable transportation methods. Railway officials have never liked the work of the commission, and have in many ways tried to evade inter-State regulations. Whether the business public would be treated fairly under pooling arrangements depends on the future personnel of the commission. Railroad officials have notoriously "winning ways."

No chemical fibre was imported at the port of New York this week. This fact simply points to the change which has taken place in the chemical fibre business in this country. The importations of soda fibre have almost ceased, while those of sulphite fibre have been reduced very materially and are now confined almost wholly to bleached and high grade unbleached fibres. American converters of wood into fibre for the use of the paper maker have gradually pushed forward and taken a portion of the field from foreign competitors, and are likely to continue the fight right along the same lines. In soda fibre, the United States is sending product abroad, while in the last eight months over 20,000 tons of moist ground wood have gone to Europe. It must not be assumed, however, that supplies of fibre from foreign sources are to be entirely cut off. There are other elements than domestic competition which have tended to decrease imports, notably the falling off in the demand for paper caused by the business depression, unhappily prolonged by the uncertainties of vexed legislation.

So our English fellow tradesmen begin to see at last that there is really something undesirable in cheap labor competition. They seem to have caught on to "some of the reasons why our manufacturers are undersold and why the mourners go about the streets as a consequence." Germany is the chief sinner against English wages, for in that country "workshops on a colossal scale exist under state protection and encouragement, in which the price of each man's labor is from 3d. to 1s. a day, no matter how many hours he may be required to toil." It is then asked, with commendable indignation: "How can British capital or British labor withstand competition of that description? And how must we regard a friendly power which connives at so infamous a system—a system especially directed against British trade?" That is just how Americans feel about cheap labor as a factor in competition; yet when Americans talk that way it seems to fall unpleasantly on English ears. The labor complained of is convict labor; but there is plenty of free pauper labor in the world, the writer himself instancing a German "paper mill employing nearly 2,000 hands where the wages are about 1s. 4d. daily for lamentably long hours." The American tariff is made a sort of appendix to this bill of grievances, because it keeps down free importation and thus makes other countries pounce down on free British markets, deluging them with cheap goods, while at the same time Americans "are tariffing *us* away wherever possible, and to any extent they may deem safe from fear of a well merited retaliation." Certainly! We agree that the writer "writes feelingly," and thought that his emotions arose from a sense of national injury; but, alas! he says himself: "We write feelingly and with more than ordinary fitness at this moment, because in our next issue we shall deal mainly with notices and descriptions of new goods and novelties to be sent abroad, *notably* with new Christmas cards for the coming festive season."

ACCORDING to the provisions of the new Canadian insolvency bill a trader will not be permitted to assign voluntarily, but only on the demand of a creditor. On the contrary, a farmer cannot be forced into insolvency, but must assign of his own volition. This is decidedly class legislation. A trader is to be accounted insolvent (1) when he fails to meet his general liabilities, (2) if he makes any general conveyance or assignment of his property for the benefit of his creditors, or, being unable to meet his liabilities in full, he makes any sale or conveyance of his stock in trade or assets without the consent of creditors or without satisfying their claims; (3) if he permits any execution issued against him to remain unsatisfied within four days of the time of the sale thereof, or to remain unsatisfied for fifteen days after the seizure; or, if, with intent to defraud or delay creditors, he allows his chattels, stock in trade or assets to be taken under any process of execution. A trader may be declared insolvent on the petition of a creditor for $250 or upward. Discharges may be made under a deed of composition and a discharge executed by a majority of creditors, or without the consent of creditors after the expiration of a year. In both cases the deed or discharge must be confirmed by the court. Any fraudulent means used in the procurement of a discharge will render it null and void. Any legislation which shall tend to make bankruptcy proceedings uniform and equitable to all parties in interest is laudable; but we do not see how a distinction can be made fairly between different classes of a community.

Watermarks.

BY DANDY.

Washington dispatches say that had one side of the Senate accepted an offer made by the other side, the tariff bill as it came from the House of Representatives might to-day be an accomplished fact. What a "kick" all over the country there would have been had this offer been taken up.

It is queer that certain newspaper and other representatives of British opinion are urging low tariff on this country just because it will be of so great benefit to American manufacturers. This is very disinterested, if the result would be as suggested; but then I wonder why they are so anxious to spite themselves. If what they say is true, we would profit at their expense.

This attempt to sugar-coat a nauseous dose will hardly make it go down with Americans, who cannot appreciate such broad disinterestedness.

An old time friend and correspondent of THE PAPER TRADE JOURNAL sends me the following: "It is said that *Cycling Life* recently lost a chance of securing an especially nice photo for its "Poem Without Words" series, and the loss was due to a singular thing. Three real nice, charming wheel-women were to have their photos taken together with their handsome faces projecting through a torn newspaper. The photo was taken and made an especially handsome picture, but the photographer had used a Chicago newspaper, and directly under the faces of the girls was the line in large sized DeVinne type of some "Never rip" overalls company—"Our pants are lined in the seat."

To which last sentence my friend adds "with Harry Bartow's sulphite." He then writes: "If you want to use this I'll take my oath on a bale of hay that it was Bartow's sulphite, as I recognized the brand." Now, Benny!

When a fellow changes his price list and discounts, he generally does it to increase or decrease price, but the paper bag men who did this act this week did not bring out either result. The net prices are the same.

Now the old list has been in operation for very many moons, so that everybody had committed it to memory, and no longer needed the printed page. As business is dull and time hangs heavy I suppose that the new list was put out in order to give all hands something to do. They've done it. They've committed it, but not to memory. Some of them have sent it to a place which in warm weather is said to be intolerably hot.

The automatic animals are to have new tags, but the price of admission to the circus will remain the same.

There's one good feature about the new discounts. It doesn't take as long to say 20 and 10, as to say 60, 10 and 5.

The bag salesmen now join the musical moke in singing:

"It's all right, but it's awkward."

Trade Talks.

Emil Günzburger, manager of the Vereinigte-Strohstoff-Fabriken, Dresden, Germany—I will sail to-morrow on the Etruria, after a stay of two weeks in this country, during which time I have traveled around to see our customers with our representative, Mr. Hamilton, and H. O. Bateman, his representative in the market. What do I think of business here! Well, I expected to find it better than it is; but it looks to me as if things were not so bad as your manufacturers appear to view them. Manufacturers magnify their troubles somewhat. As a rule I have found Americans great optimists; now they are becoming a body of pessimists. What a strange transition! Why should such a wealthy country remain in such a position? You are temporarily embarrassed and perplexed by the tariff; but that must be settled by and by, and then your turn of prosperity will come. Our own business is not affected by the proposed tariff, although I should prefer to see specific duties retained in place of the proposed ad valorem method. German paper makers are not active just now, but trade with them is better than it is with the paper trade here. They are complaining in Germany of low prices. Prices for paper stock are, however, higher over there than here, and I don't think that European exporters of paper stock will care to ship very large quantities over here, because they can secure a better market at home. Our bleached straw pulp is in very keen demand, owing to its improved quality. This applies to Europe as well as to the United States, and paper makers are beginning to appreciate its merits.

A. E. Osborn, of Osborn & Wilson, selling agents Consolidated S. O. S. Bag Company, New York—"What do I think of the new list on paper bags? Well, I have just written a letter to a customer which gives my opinion exactly. It is as follows:

"'Replying to your inquiry as to a new list on S. O. S. bags, would say a change at this time we consider undesirable and uncalled for, particularly if the net price remains the same. With the present demand for S. O. S. bags we are not obliged in order to secure business to resort to apparent changes in lists and discounts that leave the net cost to the jobber the same as before. We prefer rather to maintain the high standard of our goods, a fact our customers recognize by a patronage that has compelled the manufacturers of the S. O. S. bags to operate their factories to their utmost capacity and extra time for the last six months, notwithstanding the depression in general business. When any actual change occurs in cost price, we trust that the trade will remember the position taken by us in the past, before placing orders for inferior imitations of our goods, under the supposition that by an ingenious combination of discounts they are getting lower prices than we would quote on the genuine and only S. O. S. bags.'"

Changes, Removals and New Firms.

H. J. Neely, publisher, Wilbur, Wash., has sold out.

E. L. Morse, bookseller, stationer, &c., Beloit, Kan., has sold out.

Hayward & Hall, printers, Ipswich, Mass., have dissolved partnership.

Munn & Leitch, printers, Easthampton, Mass., have dissolved partnership.

Gorham Brothers, publishers of the Shawano *Journal*, Shawano, Wis., have sold out.

Goldberg & Diamond, dealers in paper stock, &c., Hamilton, Ont., have dissolved partnership.

Rentz & Herman, wholesale and retail paper dealers, Chicago, Ill., have dissolved partnership.

Tony Hackman has opened a stationery store at 308 and 310 North Broadway, St. Louis, Mo.

J. H. Moore & Co., publishers, Philadelphia, Pa., have changed their style to the J. H. Moore Company.

The *Sunday Dispatch*, a weekly paper published at Savannah, Ga., has been succeeded by the *Daily Dispatch*.

Blake, Moffit & Towne, paper dealers, will remove from 140 Nassau street to 707 Temple Court, 5 and 7 Beekman street, New York.

N. W. Smalls, publisher, Fremont, Neb., has sold out.

The Clark & Dana Book and Stationery Company, Boulder, Col., has been succeeded by A. M. & S. A. Sawyer.

The *Racing Calendar* is the title of a new weekly paper which has made its appearance in New York this week.

W. J. Jackson, publisher, Chilliwack, B. C., has been succeeded by the Progress Printing and Publishing Company, Limited.

George B. Hurd & Co., manufacturing stationers and paper dealers, New York, have removed to Nos. 425 and 427 Broome street.

The New York office of the Hudson River Water Power and Paper Company has been removed from 140 Nassau street to Room 101 *Times* Building.

The Cataract Paper and Pulp Mills Company, Fulton, N. Y., has sold out to William S. Royce. It has arranged to supply its customers with paper as usual.

James H. Miller, for twenty years manager of the Eagle Book Store, Reading, Pa., has opened a new book and stationery store at 825 Penn street in that city.

Eaton, Dikeman & Co., manufacturers of "Magnet" and "Columbian" blotting paper, have removed from Rooms 38 and 39 to Room 106 *Times* Building, New York.

The Tri-States Publishing Company, of Port Jervis, Orange County, N. Y., has been incorporated. Capital, $40,000; directors, Chas. St. John, Fred. R. Salmon and W. E. Scott, Port Jervis.

A charter has been granted to the Norfolk Printing and Publishing Company, Norfolk, Va.; to publish a newspaper for the advancement of the colored race. J. C. Asbury is president.

William Floyd and Allen R. Parrish, Chicago, Ill., have formed a copartnership under the style of Floyd & Parrish, and will carry on a stationery, printing and blank book manufacturing business.

J. W. Cabaniss, W. R. Holmes, O. N. Dana, Robert E. Rogers and Wm. B. Birch Macon, Ga., have incorporated the J. W. Burke Company to deal in stationery, &c. The capital stock is placed at $10,000.

The Schenectady *Union* Publishing Company, of Schenectady, N. Y., has been incorporated to do a publishing business. Capital, $40,000, and directors, Geo. West, Douglas W. Mabee and Florence L. Mabee, Ballston Spa.

A charter has been granted to the Southern Publishing Company, of Florence, S. C., with headquarters at Charleston. The company proposes to conduct a general printing business, and its capital stock will be $10,000, with privilege of increasing to $50,000.

A charter has been granted to the Washington *Times* Publishing Company, Washington, D. C., with a capital stock of $50,000, to publish a daily and weekly newspaper and conduct a printing business. Louis A. Shimpf, W. W. Rockwell, Paul T. Bowen, James K. Patten, Henry Speake, Orlando S. Montz and others are the incorporators.

The Lothair Bank Note Company has been incorporated to carry on an engraving and printing business, and to manufacture all kinds of stationery and paper supplies, in New York city. Capital, $2,000, and directors, H. Ogden Nelson and Alfred Nelson, of Astoria; Henry B. Barber and George Benjamin, of New York city.

Failures.

R. T. Wellslager, formerly of the Redhead, Norton & Lathrop Company, stationer, &c., Des Moines, Ia., which made an assignment last January, has bought the stock of the insolvent concern for George R. Lathrop and Clayton C. Rhoads, both of whom are members of the company. The business will be continued at the old stand under a style not yet decided upon. The creditors of the company have been paid 25 cents on the dollar in compromise of their claims.

Fires.

F. W. Clearwater, publisher, Huntsville, Ont., has been burned out.

C. A. Wattson, dealer in stationery, &c., Huntsville, Ont., has been burned out.

Finney Brothers, booksellers, &c., New Orleans, La., have suffered a loss by fire.

The Imperial Waterproof Paper Company, Montreal, Que., has been burned out. Insured.

Wooden & Blakeney, paper box manufacturers, Honesdale, Pa., were burned out on April 21. Loss, $13,000; insured for $9,500.

In Town.

G. W. Russell, Lawrence, Mass.; C. D. Brown and A. N. Burbank, Boston, Mass.; C. E. Callender, Glendale, Mass.; G. S. Thompson, North Hoosick, N. Y.; W. E. Everett, Turner's Falls, Mass.; J. C. Brocklebank, Chicago, Ill.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Mary A. Crocker, Worcester, Mass.	$800
Kirschner & Sons, Worcester, Mass.	400

MIDDLE STATES.

F. R. Mueller, Newark, N. J.	212
Yale Brothers, Newark, N. J.	2,352

WESTERN STATES.

J. A. Pinney & Co., Boise City, Idaho (Real).	5,000
James A. Green, Ottawa, Ill.	600
A. Oberman, Springfield, Ill. (B. S.)	230
School and Home Publishing Company, Story City, Ia.	1,800
School and Home Publishing Company, Story City, Ia. (Real)	1,700
F. F. Stanton (Stanton Printing Company), Grand Rapids, Mich. (R)	3,444
M. A. Lewis, Red Lodge, Mont.	797
John McIntosh, Lincoln, Neb.	350
John McIntosh, Lincoln, Neb.	1,500
C. W. Sherman, Plattsmouth, Neb.	—
Chequamegon Critic Company, Ashland, Wis.	552

SOUTHERN STATES.

F. A. Nelander, Kansas City, Mo. (B. S.)	300

LIENS DISCHARGED.

D. W. Evans, Harper, Ia.	100
Dudley & Hodge, Boston, Mass.	600
L. Naegele, Helena, Mont.	300

Personals.

W. E. Lathrop and wife went to Lakewood yesterday for a short sojourn.

P. J. McArdle, at whom Michael Donnelly shot a few days ago while in the Court of Common Pleas, was formerly in the paper stock trade.

Chr. Christophersen, of Christiania Sweden, whose wood fibres are so well known in this country, arrived here on Wednesday on the Havel.

R. E. Evans, president of the Consumers Paper Company Muncie, Ind., whose new strawboard mill started its 118 inch strawboard machine on April 2, is in New York.

C. Cooper Clark, president and treasurer of the Adirondack Power and Paper Company, will visit Seattle and Tacoma during May, spending about a month in that section of the country.

Chauncey Kilmer, the well-known paper maker, was married on Tuesday last to Mary Adelaide Harvey, daughter of the late Gerard Bancker, at 784 Fifth avenue, the officiating clergyman being the Rev. Dr. Cornelius B. Smith, rector of St. James' Episcopal Church. Mr. and Mrs. Kilmer have gone South.

General Notes.

Sealed proposals for furnishing stationery will be opened at the Smithsonian Institution, Washington, on Monday, May 7.

Sealed proposals for furnishing all kinds of stationery supplies required will be opened at the Post Office Department, Washington, on Monday, May 7.

Sealed proposals for supplying paper, typographic inks, engravers' supplies, binders' materials, rubber goods, &c., will be opened at the Bureau of Engraving and Printing, Treasury Department, Washington, Monday, May 7.

Sealed proposals for furnishing stationery will be opened at the War, State, Judiciary Interior, Treasury, Naval and Agricultural departments, Washington, on Monday, May 7.

Sealed proposals for furnishing stationery, blank forms and printing, school books, &c., will be opened at the office of the Commissioners of the District of Columbia, Washington, on Monday, May 7.

Sealed proposals for furnishing stationery will be opened at the office of the Interstate Commerce Commission on Monday, May 7. Bids are also invited for the purchase of waste paper from the commission.

A judgment for $5,596 has been obtained against Charles K. Alley, printer, formerly at No. 309 East Twenty-second street, New York, in favor of Robert Rutter & Son, of 116 East Fourteenth street, New York, for binding books and on discounted notes.

The sheriff has received an attachment for $4,261 against Griffith, Farran & Co., publishers, of London, in favor of John McLoughlin, doing business as McLoughlin Brothers, of New York, for merchandise sold to the London concern between January 1, 1893, and January 1, 1894.

The sheriff has received an attachment against the *Hallo* Publishing Company, New York, for $1,535 in favor of the Cherouny Printing and Publishing Company for work done in setting up and printing the weekly paper called *Hallo*. It was granted on the ground that it is a West Virginia corporation.

James Bertram & Son, Limited, of Edinburgh, Scotland, have advertised "White's" New Patent Oscillating Screen in THE PAPER TRADE JOURNAL, and write that they have received inquiries for it from the United States, and hope soon to place the screen in this country on trial order. They claim that it continues to do most excellent work in Great Britain. Joseph Town & Sons, of the Keighley Paper Mills, who make fine writings from pure rag stuffs only, give a strong certificate about this screen, which will appear in the advertisement, on May 5, of the Messrs. Bertram.

The House of Representatives on Tuesday passed the Post Office Appropriation bill for the year ending June 30, 1895. The amendments agreed to in Committee of the Whole were adopted by the House, save that which proposed to increase from 1 to 8 cents a pound the rate of postage on serial publications. Under the leadership of Mr. Quigg, of New York, a vigorous fight was made on this, and by a vote of 183 to 26 it was rejected. The principal amendments made to the bill were those which construed the law to be that the publications of fraternal societies and trades unions are entitled to transmission through the mails at second-class rates, and authorized the Secretary of the Treasury and Postmaster General to destroy after ten years paid postal notes and money orders and reports of postmasters relating thereto. These have now accumulated in the office of the Sixth Auditor to the amount of 200 tons.

Mr. Henderson, of North Carolina, chairman of the House Committee on Post Offices and Post Roads, has returned to the attack in regard to second-class mail matter. He has introduced in the House a separate bill to cover the points on which he was defeated in the Post Office Appropriation bill. His proposed measure amends the law of 1878 so as to provide that mailable matter of the second class shall embrace all newspapers and other periodical publications which are issued at stated intervals and as frequently as four times a year. Publications purporting to be issued periodically and to subscribers, but which are merely books, whether issued complete or in parts, whether bound or unbound, whether sold by subscription or otherwise, whether they purport to be premiums or parts of regular newspapers or periodicals, are not to be entered as second-class matter. Publications of second-class matter when sent by the publisher and from the office of publication, excluding sample copies, or when sent from a news agency to actual subscribers, are to be entitled to transmission at the rate of 1 cent per pound or fraction thereof. All periodical publications regularly issued from a known place at stated intervals as frequently as four times a year, by or under the auspices of benevolent or fraternal societies or orders organized under the lodge system, and having bona fide membership of not less than 1,000 persons, or by a regularly incorporated institution of learning, or by or under the auspices of a trades union, and all periodical publications of strictly professional, literary, historical or scientific societies, including the bulletins issued by the State boards of health, are to be entitled to the benefits of second-class matter. Unsold copies of newspapers and periodicals sent by mail to news agents may be returned by them at the pound rate of postage, whether the return be made to publishing houses or to news agencies.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, April 27, 1894.

THE MONEY MARKET.—The stock market was quiet and most of the moving shares closed at lower figures. The call loan market is without any feature, the monotonous record of low rates being unbroken. Banks and private bankers are unable to do better than 1 per cent. at the Stock Exchange on call contracts, but even at this figure the supply is larger than can possibly be absorbed by current speculation. The only bright spot in the situation is the making of a few advances by local banks to interior correspondents at 6 per cent., the usual rate on such business, but this does not noticeably diminish the supply. Any security which has a ready market is easily placed as collateral, and this will apply as well to time loans, which continued easy, with no important increase in the demand for accommodation. Rates were 2@2½ per cent. for short and 3@3½ per cent. for long terms. Commercial paper of the grades the banks desire continued scarce, but there was about the average offering of other names. Rates for best indorsed bills were 3@3¼ per cent. for sixty and ninety days' notes; 3½@4 per cent. for commission house names with four months to run, and 4@5 per cent. for the best single names. The market was steady to firm in tone, owing to the small offerings of bills. Demand was not very active, but was equal to the supply. Posted rates were $4.88 for sixty days and $4.89½ for sight. Actual rates were 4.87¼@4.87½ for sixty days, and 4.88½@4.88¾ for sight.

THE PAPER TRADE.—There is no improvement in the market and many dealers claim that it is duller than it was some time ago. Some of the mills, however, are running in better shape. Prices in most grades are weak, Writings being relatively the strongest. The makers of Union paper bags have formulated a new price list and new discounts, the net prices, however, being the same as before, the new list going into operation on May 1.

JUTE BUTTS.—The market is quiet and price is unchanged. We note small sale 250 bales, paper quality, at 1½c.

WOOD PULP.—Ground Wood continues to go to the other side, the bark McLauren sailing from Bangor for Fleetwood this week with about 2,000 tons, wet weight. The home demand is not very brisk, and offers are reported at $17, delivered.

WOOD FIBRE.—The demand for fibre is not brisk and purchases are confined to small lots. Domestic Soda is quoted at 2¼@3½c. for Bleached. Domestic Sulphite is quoted at 2¼@2½c., as to quality, for Unbleached, and 3½ for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2.50@3.25c.; Bleached, do., 4@4½c.; Bleached Straw Pulp, 4@4½c. There was no chemical fibre imported this week at the port of New York.

FOREIGN RAGS AND PAPER STOCK.—The market is very quiet, and while there is some inquiry actual sales are unimportant. Imports for the week at New York aggregated 8,516 bales, being 2,031 bs. rags, 326 bs. papers and 6,159 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 1,177 bs. manillas; Bremen, 20 bs. manillas; Dublin, 186 bs. papers; Hull, 22 bs. rags, 1,062 bs. manillas; Kobe, 1,343 bs. rags; Leghorn, 110 bs. rags; Liverpool, 735 bs. manillas; London, 492 bs. rags, 140 bs. papers, 1,951 bs. manillas; Marseilles, 25 bs. rags; Nassau, 13 bs. rags; Rio, 26 bs. rags; Stettin, 1,224 bs. manillas.

DOMESTIC RAGS.—The market is quiet, with Whites ranging from 3@3¼c.; Soiled Whites, 2@2¼c., and No. 2's at 1@1½c.

BAGGING, &c.—There is some little movement of Gunny, and we note sales of 500 tons, to arrive, at 1½c., and 50 tons, to arrive, at 1.15c. In Mixed Bagging we note sale of 100 tons, on spot, at 87½c. Manilla imports for the week aggregated 6,159 bales, being 1,177 bs. from Antwerp, 20 bs. from Bremen, 1,062 bs. from Hull, 725 bs. from Liverpool, 1,951 bs. from London, and 1,224 bs. from Stettin.

OLD PAPERS.—There is a moderate movement in old papers. We quote: No. 1 Hard White Shavings, 2¼c.; No. 1 Soft White do., strictly free from wood, 2½@2½c.; Soft White do., ordinary, 2@2¼c.; Old Ledgers, 2¼c.; Solid Printed Books, 1½c.; Mixed Shavings, No. 1, 1.20 @ 1.25c.; Mixed Shavings, No. 2, ¼@1c.; Extra No. 1 Manillas, 1¼@1.30c.; No. 1 Manillas, ordinary, 1c.; No. 2 Manillas, .85@¾c.; Light Book Stock, ¾@1c.; Folded News, 45@50c.; Mixed Papers, 50@55c.; Commons, 45@50c.; Bogus Manillas, 65@70c.; Straw Clippings, 60@65c.; Binders' do., 55c.

STRAW.—Straw is quiet and easy. We quote: No. 1 Long Rye at 60c.; No. 2 Long Rye at 50@55c.; Short Rye at 40@50c.; Wheat at 45@50c.; Oat at 45@55c.

ROSINS.—Rosins are quiet. We quote: Common to Good Strained, $1.40@1.45; E, $1.55; F, $1.70; G, $2; H, $2.35; I, $2.60@2.65; K, $2.90@2.95; M, $3@3.10; N, $3.20@3.30; W. G., $3.30@3.35.

CHEMICALS.—The market for paper makers' chemicals is very quiet. Bleaching Powder is in moderate movement and the price remains as before. The Alkali market is rather unsettled, and stock continues to accummulate. Caustic soda is in fair movement and Sal Soda is quiet. During the week there have been sales of 100 casks Bleach at 2¼c.; 50 tons Soda Ash at 1½c.; 75 tons 58 per cent. Alkali at 1.15c.; 50 drums Caustic at 2¼@2.80c.

CHINA CLAY.—This article is steady at previous quotations, current inquiry disclosing a good request for the ordinary consuming parcels, but a noticeable absence in important demand.

TWINES.—Trade continues quiet. We quote: Sisal Hay Rope, 6¼c.; Sisal Lath Yarn, fine, 9¼c., and medium, 9¼c.; Jute Lines, 6½c.; Jute Ready, 6c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 9¼c.; medium, 8¼c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c.; Russian Hemp Hay Rope, 9c.

COAL.—The Anthracite trade is fair. Wholesale prices have been reduced, and this has led to a reduction in retail prices in all parts of the country. Miners of Bituminous coal are now striking, and although there is very little soft coal now being dug stocks are fair, and conveniently located, the more particularly for Western buyers.

EDWIN BUTTERWORTH & CO.,
MANCHESTER ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
℗ 83 GUNNY BAGGING, &c.
OFFICE IN NEW YORK:
Vanderbilt Building, No. 132 Nassau Street,
JAMES PIRNIE, A. S. DEMAREST, } Managers.

WATERBURY
Felts and Jackets,
MANUFACTURED BY
H. WATERBURY & SONS CO.,
ORISKANY, N. Y.
Adapted to *every* grade of paper, from the *finest* to the *coarsest*.
The Largest Manufacturers of Paper Makers' Felts in the World.
Our wet machine or pulp felts are *unequaled for durability*.
For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.
DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.24
Flat Caps, superfines	14	@	16
Flat Caps, fines	11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8	@	15
Blotting, English	17	@	....
Book, super sized and calendered	6	@	9
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6
Book, machine finish, low grade	5	@	5½
News, No. 1	4	@	4½
News, rag and wood	3	@	3½
Poster	5	@	7
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35
Tissues, black, 20×30, ℔ ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	85	@	1.00
White tissue, 24×36, ℔ ream	1.30	@	1.50
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6¼	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2¾	@	3½
Wrapping Parchment	16	@	20
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	4½	@	5
Binders' Board, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ℔ ton	47.50	@	....
Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill			@94.00
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm	85	@	....
30×40, from 30 to 34 lbs. ℔ rm	....	@	72
24×36, from 24 to 26 lbs. ℔ rm	....	@	60
22×32, from 24 to 26 lbs. ℔ rm	56	@	....
20×30, 21 lbs., ℔ rm	....	@	44
20×30, from 14 to 17 lbs. ℔ rm	36	@	....
16×22, from 12 to 13 lbs. ℔ rm	28	@	....
18×28	....	@	32
15×20, 10 lbs. ℔ rm	17	@	19
15×20, from 7 to 8½ lbs. ℔ rm	17	@	19
14×18	....	@	15
12×16	....	@	13
11×15	....	@	11
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	1¼	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	18	@	20
14×20	22	@	....
Card Middles, ground wood	5¼	@	6¼
Card Middles, long fibre wood	8½	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	8	@	9
White Woolens	9	@	10
Blue Gray Stockings	7	@	8
White Stockings	15	@	16
Blue Flannels	6	@	7
Reds, old	7½	@	8
Reds, new Shirt Clippings	20	@	21
Mixed Softs, free of Carpets	7½	@	8
Seamed Cloth	3¾	@	4
Skirted Cloth	2½	@	2
New Cloth Clips	9	@	11
New Satinets, clean stock	1½	@	1½
Satinets, old	65	@	75
Seams	1	@	1¼
Delaines, stripped for extract	2½	@	3¼
Blankets, Woolen	2½	@	2½
Wool Carpets	3	@	....
White Linseys	3	@	3¼
Mixed Linseys	1½	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	6	@	6¼
Mill Assorted Whites	4	@	4½
Unbleached Muslins	5	@	5¼
City Whites, No. 1	3½	@	....
New Seconds, light	2½	@	3
New Seconds, dark	2¼	@	2½
No. 2 Whites	1½	@	....
Cotton Canvas, No. 1	4½	@	....
Linen Canvas, No. 1	....	@	4
Country Mixed, free of Woolens	75	@	1
Seconds (City)	90	@	1
Colors, ℔ 100 lbs.	....	@	....
Manilla Rope	2.50	@	....
Manilla Rope, tarred	....	@	2
Gunny Bagging, No. 1	....	@	1½
Gunny Bagging, No. 2	90	@	1
Burlap Bagging, No. 1	1	@	1¼
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1¼	@	1½
Hemp Twine Stock	2½	@	....
Jute Waste	¾	@	1

Shavings and Old Paper.

White Collar Cuttings	3	@	....
White Envelope Cuttings	3½	@	....
Hard White Shavings, No. 1	3	@	3¼
Soft White Shavings, strictly free from wood	2½	@	2¾
Soft White Shavings, ordinary	2½	@	....
Mixed Shavings, part white	1	@	1½
Ledger and Writing	....	@	2¼
Solid Stock	....	@	1½
Book Stock, No. 1 light	....	@	1¼
Old Newspapers	55	@	57
Imperfections	....	@	....
Manillas, No. 1	....	@	1.25
Hardwares, No. 1	65	@	....
Bogus Manillas	60	@	65
Mixed Papers	40	@	50
Commons	35	@	40¼
Binders' Board Cuttings	50	@	....
Strawboard Cuttings	60	@	65

English Old Papers and Shavings.

Hard Shavings, No. 1	2	@	....
Soft Shavings, No. 1	2¼	@	2½
White and Colored Shavings, No. 1	1¼	@	1½
White and Colored Shavings, No. 2	1	@	1¼
Cream Post Shavings	2¼	@	....
Paper Collar Cuttings	....	@	2
Briefs and Letters	....	@	1.90
Newspapers and Pamphlets, extra	1½	@	....
Old Newspapers	75	@	....
Broken News and Letters	½	@	1
Old Blank Books	2¼	@	2½
White and Buff Railway Sheets	1¼	@	....

Japanese Rags.

Blues, Hiogo	1.45	@	....

Chemicals, Coloring Materials, &c.

Alkali, 58 ℔ cent	1.55	@	1.75
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1½	@	¾
Alum, Diamond	....	@	2½
Alum, pearl	2¾	@	2½
Alum, porous	2¼	@	2½
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¼
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	2¼	@	....
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	2.75	@	2.80
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ cwt	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	90	@	35
Prussiate Potash, American	....	@	34½
Rosins, common to good strained, ℔ bbl	1.42½	@	1.45
Rosins, E, ℔ bbl	....	@	1.55
Rosins, F, ℔ bbl	1.70	@	....
Rosins, G, ℔ bbl	....	@	2.00
Rosins, H, ℔ bbl	2.35	@	....
Rosins, I, ℔ bbl	2.60	@	2.65
Rosins, K, ℔ bbl	2.90	@	2.95
Rosins, M, ℔ bbl	3.00	@	3.10
Rosins, N, ℔ bbl	3.30	@	3.30
Rosins, W G, ℔ bbl	3.30	@	3.35
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2¼
Sulphuric Acid, 66 ℔ cent	1	@	1¾
Ultramarine, blue	14	@	17¾
Venetian Red	1	@	1¾
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	4	@	....
No. 2 Whites	2	@	2¼
Common Seconds	2	@	2½
Thirds and Blues	1	@	1.20
Southern Mixed Rags	80	@	1
Colors, country	½	@	¾
Colors, city	25	@	30
New Calicoes, light	2	@	2½
New Calicoes, dark	1½	@	1½
Shirt Cuttings, best	4¾	@	5
Shirt Cuttings, good	4	@	4¼
Shirt Cuttings, unbleached	4	@	4¼
Shirt Cuttings, unbleached No. 2	....	@	3
Shirt Cuttings, cheviots	3	@	3¼
Overall Cuttings, blue	....	@	3
Overall Cuttings, brown	2	@	2½
Shoe Rags, bleached	3¾	@	4
Shoe Rags, unbleached	3¼	@	3
Shoe Rags, brown	3	@	....
Cotton Flannels, bleached	3¾	@	4
Cotton Flannels, unbleached	3½	@	....
Corset Rags, drab	3½	@	....
Corset Rags, white	4	@	....
Tailors' Seconds	1¼	@	1¾
Tailors' Colors	25	@	3
Cotton Canvas	....	@	3
Cotton Canvas, No. 2	....	@	1½
Linen Canvas	1½	@	2
New Canvas Cutting	4	@	4½
Insole Canvas	3	@	3½
Print Papers, best	35	@	40
Print Papers, ordinary	30	@	35
Folded News	35	@	40
Old Waste Papers	15	@	20
Manilla Paper, No. 1	1.30	@	1.35
Manilla Paper, good mixed	90	@	....
Manilla Paper, blues	75	@	....
Mixed Book Stock	1	@	....
Books and Pamphlets	1½	@	1¾
Book Stock, light	½	@	1
Ledgers and Letters	1¾	@	2½
Soft Book Shavings	1½	@	2
Hard White Book Shavings	2¾	@	3¼
Leather Board Chips	75	@	80
Straw Chips	45	@	50
Shivey Bagging	1½	@	....
No. 1 Factory Bagging	1	@	1¼
Burlap Bagging	85	@	1
Burlap Bagging, large pieces	85	@	1¼
Kentucky Bagging	1½	@	2
Mixed Bagging	½	@	....
No. 2 Bagging	½	@	¾
Shakings, soft	½	@	....
Tarred Shakings	1	@	1¼
Standing Rigging	3	@	....
Standing Rigging, foreign	2½	@	....
Bolt Rope	2	@	....
Oakum Junk, No. 2	1¾	@	1¾
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	¾	@	....
Manilla Rope	2	@	2.15
Tarred Manilla	1½	@	....
Hemp Strings	1¾	@	2
Sisal Strings	80	@	1
Wool Strings	90	@	1.10
Flax Tow	¾	@	1
Flax Waste	¾	@	1

New Papers.

Superfine Book	6	@	7
Fine Book	5½	@	6
News, rag and wood	3	@	....
Manilla, Cream Rope	9½	@	10
Manilla, No. 1, Rope	7½	@	8¼
Manilla, Extra Jute	5½	@	6
Manilla, Jute and Gunny	5½	@	6
Manilla, No. 2	4	@	4¼
Manilla, Bogus	2	@	3
Hardware, No. 1, tarred	7½	@	8¼
Hardware, No. 2	6½	@	7
Hardware, red	4¼	@	5½
Strawboards, air dried, ℔ ton	37½	@	45.00
Strawboards, steam dried, ℔ ton	30.00	@	35.00
Straw Wrapping, heavy	1.90	@	2¼
Straw Wrapping, light	2¼	@	2½
Binders' Boards, ℔ ton	45.00	@	50.00
Leather Board, Common, ℔ lb	3	@	4
Leather Board, counter	5	@	6
Leather Board, extra	8	@	10
Tar Boards, ℔ ton	100.00	@	110.00

Chemicals.

Alkali	1.00	@	1.10
Aluminous Cake, currency	1¼	@	1¼
Alum, American ground	....	@	1.95
Alum, American lump	....	@	1.85
Anti-Chlorine	2	@	2½
Bichromate Potash, American	10	@	....
Bleaching Powders	2½	@	2¼
Blackley Blue	2.00	@	3.00
Caustic Soda, 74 ℔ cent	....	@	2.65
Clay, English, ℔ ton	14.00	@	18.00
Clay, American, ℔ ton	10.00	@	11.00
Copperas, ℔ lb	65	@	75
Extract Logwood	5½	@	11½
Lime, Rockland, ℔ bbl	90	@	....
Prussian Blue, ℔ lb	50	@	60
Prussiate Potash, American, yellow	22	@	22½
Prussiate Potash, red	38	@	38½
Rosin, common strained, ℔ bbl	1.90	@	2.50
Rosin, Medium	2.20	@	3.00
Rosin, extra pale, ℔ bbl	3.00	@	4.50
Sal Soda, English, ℔ lb	1.00	@	1.05
Soda Ash, 48 ℔ cent. caustic	1.40	@	1.60
Soda Ash, 48 ℔ cent. carbonated	1.37	@	1.50
Soluble Blue	55	@	65
Sugar Lead, white	11	@	12
Sugar Lead, brown	5½	@	6
Sulphuric Acid, 66°	¾	@	1¼
Terra Alba, ℔ ton	15.00	@	20.00
Ultramarine, ℔ lb	12½	@	15
Venetian Red, ℔ lb	1¾	@	2¼
Vitriol, Blue	3½	@	3¾
Yellow Ochre	¼	@	1

Wants and For Sale.

Twenty-five words or less, one dollar each insertion. Over twenty-five words, four cents a word each insertion, up to eighty words. Cash should accompany order.

Over eighty words, or displayed advertising, will be charged for by the inch, according to our regular schedule of rates.

Answers can come in our care and will be promptly forwarded without extra charge.

SUPERINTENDENT WANTS POSITION; thorough paper maker and colorer; accustomed to all grades of stock; good mechanic; long experience; good references. Address SUPERINTENDENT, care Journal.

WANTED—SITUATION, NIGHT BOSS OR boss machine tender, or would run machine, cylinder, Fourdrinier or Harper; nineteen years' experience; state wages. M. F., care Journal.

WANTED—SITUATION IN A COATED paper mill; ten years' experience; can take charge of same; new concern preferred; first-class recommendation. Address COATED, care Journal.

WANTED—TO HEAR FROM PARTIES IN want of an experienced color mixer, to take charge of color room. Apply COLOR MIXER, care Paper Trade Journal.

WANTED—EXPERIENCED MAN TO RUN coating machines. Address COATERS, care Paper Trade Journal.

WANTED—A ROTARY CUTTER; ALSO A clamp cutter; state size and price. H. B. WIGGIN'S SONS, 124 Clinton place, New York.

MACHINE TENDER AND BACK TENDER wants a job; used to running book, news and manilla; run large machine on small orders. Address M. R., care Journal.

SITUATION WANTED AS FOREMAN OF beater room, or beating engineer. Address W. C. O'BRIEN, P. O., Denver, Col.

A PRACTICAL MAN OF LARGE EXPERIence, accustomed to all grades of stock and paper, now open to an engagement; good reference. PAPER MAKER, care Journal.

SUPERINTENDENT WANTS POSITION; thorough paper maker; now superintending mill making colors, roll news and manilla; also pulp mill; long experience; good reference. AMOS, care Journal.

WANTED—SITUATION AS A BACK TENDER; steady and sober; married man; four years' experience on news and manilla. WILLIAM EARL, Box 336, Ballston Spa, N. Y.

WANTED—BY A FIRST-CLASS MAN, situation as foreman; thoroughly understands the handling of both wood and jute fibres; can furnish the best of references. Address MANILLA, care of Paper Trade Journal.

WANTED—SITUATION AS FOREMAN OF rag room; accustomed to writing, envelope, book, news, manilla and colors; twenty years' experience. Address NORTHERN, care Paper Trade Journal.

SITUATIONS WANTED BY FIRST-CLASS superintendents, machine tenders and engineers; worked on all grades of paper; both slow and fast running machines; can furnish best references if required. Apply to EAGLE LODGE No. 1, Brotherhood of Paper Makers, Box 672, Holyoke, Mass.

WANTED—AN EXPERIENCED SALESMAN on strawboards for New England and New York trade. Answer QUICK, care Paper Trade Journal.

WANTED—ONE STACK OF CHILLED CALenders, 48, 50 or 52 inches; seven or nine rolls. Address FINISH, care of Paper Trade Journal.

WANTED BY A BOSTON HOUSE
TWO SALESMEN

For the New England trade; must be well acquainted and have knowledge of book, news and writings; only A1 salesmen desired; communications strictly confidential. Address SALESMAN, care Paper Trade Journal, New York.

AN INGERSOLL STEAM PRESS, WITH countershaft, pulleys and belting complete, suitable for rags, papers, will be sold cheap; also rag duster. Address W. L., care Journal.

FOR SALE CHEAP—THE WHITEMAN PULP and paper mill at Dansville, N. Y., fireproof; water and steam power and electric light; two railroads. For price, terms and cut of building address H. B. HATHAWAY, Rochester, N. Y.

FOR SALE—A SECOND-HAND COPY OF HOFmann's Treatise on Paper Making in good condition for sale cheap. For further particulars address URGENT, care Paper Trade Journal.

TO LEASE.
The Hanmer & Forbes Company's Manilla Mill.

BURNSIDE, Conn., April 10, 1894. C. F. HANMER, Secretary.

FOR SALE.
A Three Shaft Manning Winder.
Will be sold cheap.

THE MOORE & WHITE CO., 15th street and Lehigh avenue, Philadelphia.

FOR SALE.

Fourdrinier Machine. New and Modern; wire, 92 inches wide, 45 feet long; forty 2¼ inch table rolls, three brass suction boxes; gun metal and rubber press rolls; thirteen dryers, 48×88; nine stack calenders, reels, cutter; Manning winder; cone pulley driving train.

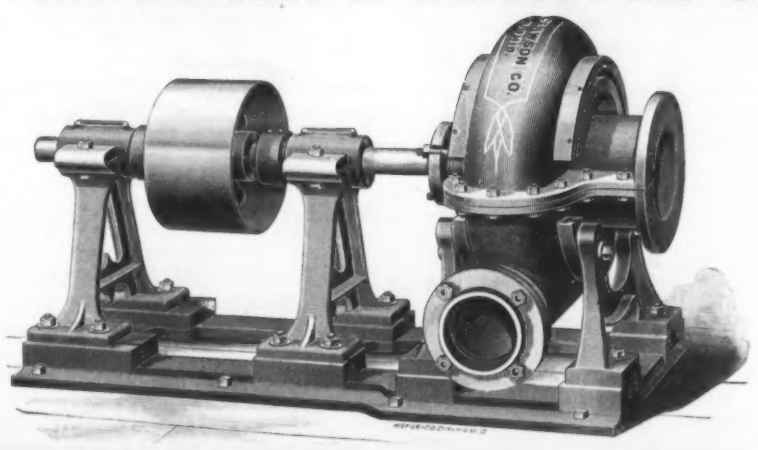
THE BLACK & CLAWSON CO., Hamilton, Ohio.

FOR SALE.

Five upright digesters, 5x16 ft.
Two vacuum chambers—one 5x22 ft., one 4x10 ft.
Two pulp tanks, 12 ft. square, 4½ ft. high.
Four alkali mixing tanks with agitators—two 5x9 ft., two 8 ft. high, 8 ft. round.
Two fan pumps, Nos. 4 and 6.
Two fan pumps, No. 2 and 5.
One rotary fan pump.
Two centrifugal pumps.
One Dean pump, steam 14 in., water 14 in.
One Woodsworth pump, steam 12 in., water 7 in., 44 in. fly wheel.
One Blake pump, No. 9, steam 6 in., water 6 in.
One screw press.
One blower, 50 in. Sturtevant, 18 in. exhaust.
One straw cutter.
One hydraulic pump.
Six Downingtown beater washers, complete.

THE EMBOSSED LUMBER AND FIBRE CO., 257 Front street, New York.

THE BLACK & CLAWSON CO., MANUFACTURERS OF Paper Mill Machinery,



FOURDRINIER,
HARPER IMPROVED FOURDRINIER AND CYLINDER MACHINERY.
JORDAN ENGINES.
Jordan Engines Refilled.

Screens, Calenders, Rag Cutters, Cylinder Molds, Deckel Straps, Paper Cutters, Screen Plates, Dandy Rolls, Stuff Box Trucks, Iron and Brass Castings.

REVOLVING REELS AND STACK REELS.

FOR PARTICULARS ADDRESS
THE BLACK & CLAWSON CO., Hamilton, Ohio.

WE MAKE THE ONLY PERFECT DRYER.

MEDAL AWARDED AT WORLD'S FAIR FOR OUR SEAMLESS DRYER.

TREASURY DEPARTMENT, OFFICE OF THE Secretary, Washington, D. C., April 7, 1894—Sealed proposals for furnishing Bank Note Paper of the highest quality, containing the distinctive features of the paper now in use by the Department for United States Notes, National Bank Notes, Bonds, Certificates, Checks and other Securities, except Internal Revenue Stamps, for the fiscal year ending June 30, 1895, will be received at this Department from manufacturers of bond, bank note and other fine papers until 1 o'clock P. M. Thursday, May 10, 1894. Full information upon this subject will be given upon application to this office, where samples of the paper required may be examined. Proposals should be addressed to the Secretary of the Treasury, marked "Proposals for Distinctive Paper." The Secretary reserves the right to reject any or all bids. JOHN G. CARLISLE, Secretary of the Treasury.

A FINE OPPORTUNITY
TO GO INTO BUSINESS.

To a company that understand the coating business an offer will be made to furnish a fully equipped plant, ample room with plenty of power. Well situated for future business. Will either lease plant or take an interest in the business. Parties answering advertisement must be in position to furnish all necessary capital to buy stock and carry accounts. Address A. B. C., care of Journal Office.

SPECIAL NOTICE.

Hofmann's Treatise ON Paper Making.

IN 1873—twenty years ago—Carl Hofmann first published his *TREATISE ON PAPER MAKING.* He was then, and for some years had been, a practical paper maker in America. His experience in the trade abroad, as well as in this country, and his technical education and knowledge enabled him to be specially adapted for the work; hence "Hofmann's Treatise on Paper Making" took high rank at the start, and soon became *a* standard work on the subject throughout the world. It was published in English, German and French, and had wide sale in all three languages.

As years passed it became *the* standard work, and for the past decade copies have sold at large prices, often as high as $30 each, and occasionally for more money. The original book consisted of 422 pages, 8¼ by 11 inches in size.

Mr. Hofmann returned to Germany more than eighteen years ago and settled in Berlin. He established *The Papier Zeitung*, and in due course, about seven years ago, began to write his second and latest Treatise. Thus far he has printed and published probably 1,200 pages in German, and in parts of forty-eight pages, including cover, profusely illustrated by wood cuts. When finished the book will consist of about 1,600 pages (pages size same as in first book), illustrated by 1,500 wood cuts.

We have contracted to translate and publish the work in English in twenty parts, of about eighty pages each, at intervals of not less than sixty days, and at a cost of *one dollar cash, in advance, for each and every part.* When the enterprise is completed the twenty parts will sell, *unbound*, for *twenty dollars.* The binding will be extra. Subscribers can themselves have the parts bound, or have us bind them at extra expense; but it should be noted that no money will be saved by waiting until THE TREATISE is completed and bound.

We shall announce within some weeks when "PART ONE" will be ready for delivery.

Orders can be placed now, or later if preferred; and subscribers can send *one dollar* or *six dollars*, which latter would pay for six parts during a year.

We cannot accept any order that is not accompanied by the cash.

Every manufacturer of paper or pulp, every superintendent of a mill, every machine tender, every man whose life-work consists in making or selling paper in the United States, Canada, and all over the world, except Great Britain and the Continent of Europe, should send us his subscription. We will furnish each part postpaid. We will print and ship the English Edition for the European market, but cannot accept orders therefrom.

HOWARD LOCKWOOD & CO., **Publishers, New York.**

NOTICE.

My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me, to wit: No. 212,866, dated March 4, 1879, covering a new form of carpet lining, and No. 235,698, dated December 21, 1880, covering the method of and apparatus for making the same, this is to notify all such persons, whether manufacturers or dealers, that any infringement of either of said patents will be prosecuted to the full extent of the law. MOSES NEWTON, Patentee.

PAPER MILL MACHINERY.

One 84 inch Fourdrinier part to paper machine complete, with Gould screen.
One 74 inch Fourdrinier machine complete, Gould screen; gun metal press rolls, 15x75 inches; eight iron dryers, 36x72 inches; stack of nine chilled rolls, 72 inch face; upright reel and cone pulley cutter; Bess slitters.
One Gould screen, eight plates, 10x36 inches.
One Gould screen, eight plates, 12x40 inches.
One Barber's suction.
One 70 inch machine complete, Gould screen, Fourdrinier wire, 70x33 inches; first and second presses; eight iron dryers, 36x65¼ inches; stack five chilled rolls, four 12 inches, one 16x64 inches face; upright reel, slitter and winder.
Two new 1,000 pound Holyoke Machine Co. beaters, wood tubs.
One 1,000 pound iron tub beater.
Six beating engines, 36 inch roll, iron tubs.
One 1,200 pound Horne patent engine, new.
One rotary, 7x20, double riveted, 9-16 inch shell.
Three Scott & Roberts hydraulic pulp grinders.
Three Jordan engines.
Two rag cutters and duster.
Four iron dryers, 28x72 inches.
Send for catalogue of machinery, steam engines and boilers.
1,000 feet shafting, 2 to 6 inches diameter; 500 feet belting, 5 to 48 inches wide.
Parties wanting tools, stock or machinery used in a paper or pulp mill can find it here at a bargain.
F. H. DAVIS & CO., Exchange B'd'g, Boston, Mass.

Don't Guess at Important Matters.

Bowsher's SPEED OR MOTION INDICATOR IS INDISPENSABLE
In obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diameter. Weight 10 pounds.
N. P. BOWSHER, South Bend, Ind.

Paper Making and Its Accessories.

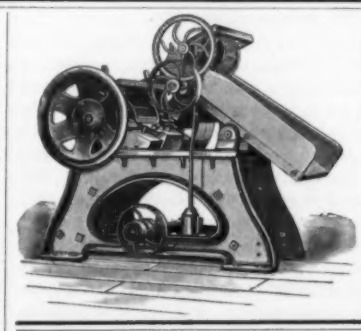
BOOKS OF REFERENCE

THE following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

AUERBACH.—Anthracen: Its Constitution, Properties, Manufacture and Derivatives. 8vo	$5 00
BAIRD.—Standard Wages Computing Tables. Folio	5 00
BENSON.—Principles of the Science of Color. 4to	7 50
BENSON.—Manual of the Science of Color. 12mo	1 00
BESANT.—A Treatise on Hydro-Mechanics. 8vo	5 00
BOX.—A Practical Treatise on Heat as Applied to the Useful Arts. Illustrated by fourteen Plates. 12mo	5 00
BOX.—A Practical Treatise on Mill Gearing. 12mo	3 50
BOX.—Practical Hydraulics. 12mo	2 00
BRESSE.—Hydraulic Motors. 8vo	2 50
BROWN.—Five Hundred and Seven Mechanical Movements. 12mo	1 00
CALVERT.—Dyeing and Calico Printing, including an Account of the Most Recent Improvements in the Manufacture and Use of Aniline Colors. With dyed Patterns. 8vo	5 00
CHEVREUL.—The Principles of Harmony and Contrasts of Colors and Their Application to the Arts. Illustrated with Colored Plate. 12mo	3 00
COOPER.—A Treatise on the Use of Belting for the Transmission of Power. 8vo	3 50
CORFIELD.—Water and Water Supply. 16mo	50
CROOKES.—Handbook of Dyeing and Calico Printing. With dyed Patterns. 8vo	15 00
CULLEN.—Practical Treatise on the Construction of Horizontal and Vertical Water Wheels. 4to	5 00
DOWNING.—The Elements of Practical Hydraulics. 8vo	2 75
DUNBAR.—The Practical Paper Maker	1 00
FAIRBAIRN.—The Principles of Mechanism and Machinery of Transmission. 12mo	2 50
FAIRBAIRN.—A Treatise on Mills and Millwork. 2 vols., 8vo	10 00
FANNING.—A Practical Treatise on Water Supply Engineering. 8vo	5 00
FRANCIS.—Lowell Hydraulic Experiments on Hydraulic Motors. 4to	15 00

SEND ORDERS TO

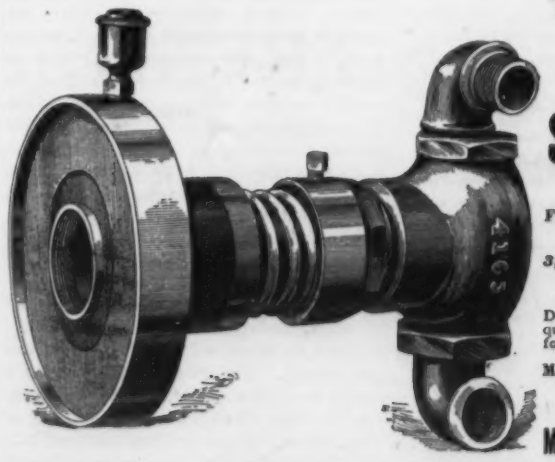
HOWARD LOCKWOOD & CO., **Box 3715 P. O. New York.**



CLARK & SPENCER,
Successors to E. P. TANNER'S
FOUNDRY AND MACHINE WORKS,
LEE, MASS.,
MANUFACTURERS OF
New and Improved **Spiral Knife Rag Cutters,**
Cylinder Paper Machines, Rag Engines, Paper Cutters, Super and Machine and Chilled Iron and Paper Roll Calenders, Stuff and Fan Pumps, Shafting, Pulleys, Gearing and Paper Mill Machinery generally.

DO YOU WANT A . .
RAG CUTTER,
TO CUT ROPE, JUTE BUTTS, BAGGING, OR ROOFING PAPER STOCK?
IF SO, WRITE TO
TAYLOR, STILES & CO.,
RIEGELSVILLE, N. J.

APPLETON WOOLEN MILLS.
MANUFACTURERS OF
PAPER MAKERS FELTS.
The only Mill west of Ohio.
We have demonstrated our ability to compete in
Fourdrinier, Press, Cylinder and Pulp Felts,
and solicit a trial order, especially for writing and book papers.
APPLETON, - - WISCONSIN.



The ROACH PATENT METALLIC Steam Joint
Patented May 13, 1884, and Sept. 8, 1885.
For Rotary Paper Dryers and Revolving Cylinders.
3,000 NOW IN USE on PAPER MACHINES.
Does away with Packing the Dryers. No Leakage of Steam. Requires No Attention and will Last for Years.
Medal Awarded at World's Fair.
Send for Circular and Price List.
M. J. ROACH, ANDERSON, IND.

RIVERSIDE PAPER CO., HOLYOKE, MASS. — "MAGNA CHARTA" BOND, "PURE LINEN STOCK" LINENS (WHITE WOVE AND CREAM LAID), "DUNDEE RECORD" LEDGERS.

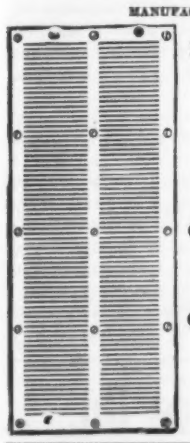
TICONDEROGA PULP AND PAPER CO., TICONDEROGA, N. Y. — WHITE MANILLA, POSTAL LINEN, MAYFLOWER LINEN, BOOK AND NEWS.

FRANKLIN PAPER CO., HOLYOKE, MASS. — ANIMAL SIZED AND SUPERCALENDERED BRISTOL BOARD, BOX BOARD, DUPLEX AND COVER PAPERS, IN WHITE, TINTS AND COLORS.

JUDSON & WILLIAMS,

HOLYOKE, MASS.,

MANUFACTURERS OF



SCREEN PLATES

—OF—

BRASS

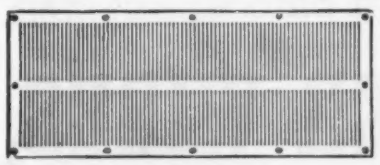
—OR—

CAST METAL.

REPAIRING

OLD SCREEN PLATES

A SPECIALTY.



OLD PLATES RENEWED.

World's Fair

HIGHEST AWARD

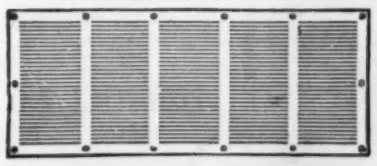
TO

SCREEN PLATES of SPECIAL BRASS,

MADE BY THE

Western Screen Plate Works,

545 Eldorado St., APPLETON, WIS.



TRUCKS! TRUCKS!

Mounted on Rubber or Iron Wheels.

TRUCKS MADE TO ORDER.

Write for Prices.

RUBBER WHEELS, IRON WHEELS.

Casters of All Kinds.

CATALOGUES FREE.

GEO. P. CLARK,

Box R, Windsor Locks, Conn.

F. M. SPAULDING

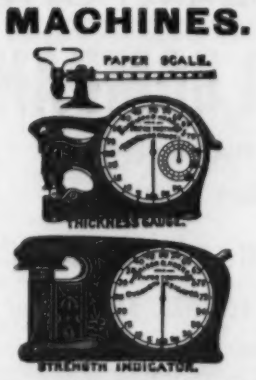
CONTRACTS FOR

News and Book Paper in Quantity.

40 State Street, Boston, Mass.
506 Inter-Ocean Building, Chicago, Ill.
News Building, Indianapolis, Ind.

THE MORRISON & HERRON TESTING SYSTEM.

THE MORRISON & HERRON IMPROVED PAPER TESTING MACHINES.



Three Different Machines

—FOR—

Strength, Thickness and Weight.

A NEW PRINCIPLE APPLIED IN TESTING PAPER.

Thickness shown to the sixteen-thousandth part of an inch.

Used in the GOVERNMENT PRINTING OFFICE and the DEPARTMENTS at Washington.

Price, complete,	$150.00
Or Strength Indicator,	75.00
Thickness Gauge,	75.00
Paper Scale,	20.00

ADDRESS ALL ORDERS TO

HOWARD L. MORRISON,

1009 Pa. Ave., N. W., Washington, D. C.

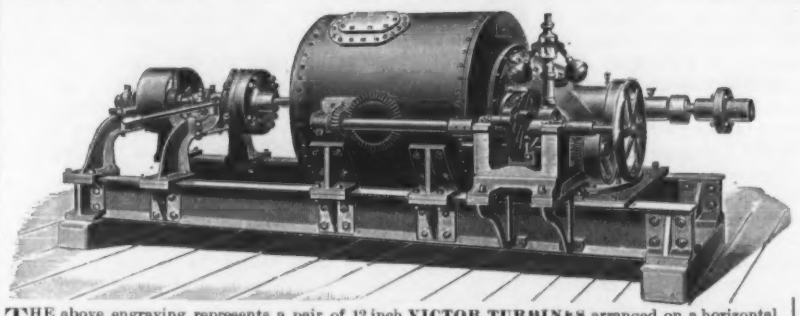
CAUTION.

All persons are liable to prosecution who make buy or use Paper Testers that confine and break paper within its edges, as my Patents cover that method.

THE VICTOR TURBINE.

UPRIGHT or HORIZONTAL.

In use in a large number of best Paper and Pulp Mills in this and other Countries.



THE above engraving represents a pair of 12 inch **VICTOR TURBINES** arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first class in every particular. We are now prepared to furnish Victor Turbines, either single or in pairs, on horizontal shafts, and where the situation admits of their use we recommend them.

CYLINDER OR REGISTER ***GATE***

INSURING HIGHEST PERCENTAGE OF USEFUL EFFECT AT

FULL AND PARTIAL GATE.

TESTS IN HOLYOKE FLUME.

SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT. OF USEFUL EFFECT.
15 inch	18.06	30.17	.8932
17½ inch	17.96	36.35	.8930
20 inch	18.21	49.00	.8582
25 inch	17.90	68.62	.8584
30 inch	11.95	52.54	.8676
35 inch	17.29	133.19	.8497
40 inch	16.49	148.93	.8253
48 inch	15.51	179.29	.8202

Such results, together with its nicely working gate and simple, strong and durable construction, should favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.

THE VICTOR WHEEL is particularly adapted to setting on **HORIZONTAL SHAFT,** DISPENSING ENTIRELY WITH GEARS.

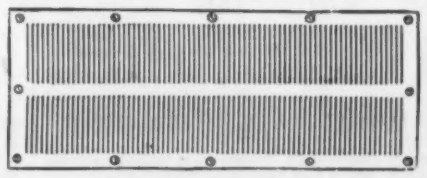
STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO

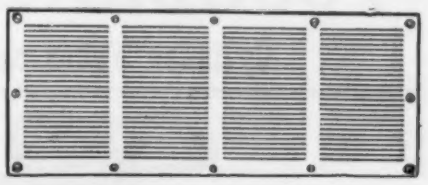
THE STILLWELL-BIERCE & SMITH-VAILE CO., DAYTON, OHIO, U. S. A.

ANNANDALE

Screen Plate Co.,

PATERSON, N. J.





Manufacturers and Repairers of

SCREEN PLATES.

Our new Plates are made of the **VERY BEST METAL,** and for price and durability cannot be surpassed.

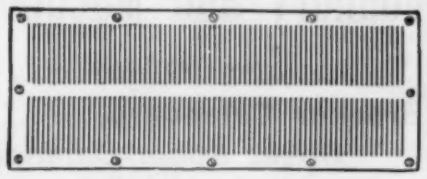
OLD PLATES RE-CLOSED.

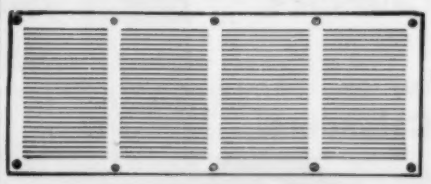
A. A. TRAIN,

21 Main St., FITCHBURG, MASS.,

MANUFACTURER OF

Screen Plates





OF BRASS OR CAST METAL,

AT PRICES

THAT CANNOT BE SURPASSED.

BEST STOCK USED.

Write for Prices and Gauges.

All Work Warranted.

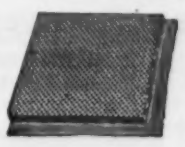
Paper Makers, Attention!

Do you thoroughly gauge your Screen Plates to see if they are accurately cut? Why use imperfect plates when you can procure the best by sending your orders for new or old work to the APPLETON SCREEN PLATE COMPANY who are at the front as screen plate makers and repairers, using nothing but the best of brass and bronze in their plates and making accuracy of work their motto.

Appleton Screen Plate Company,

APPLETON, WIS.

SAMPLES AND QUOTATIONS FURNISHED UPON APPLICATION.



IMPERIAL ASBESTOS SECTIONAL PIPE AND BOILER COVERING.

Asbestos Prepared Roofings.

(Specially adapted to Paper Mills).

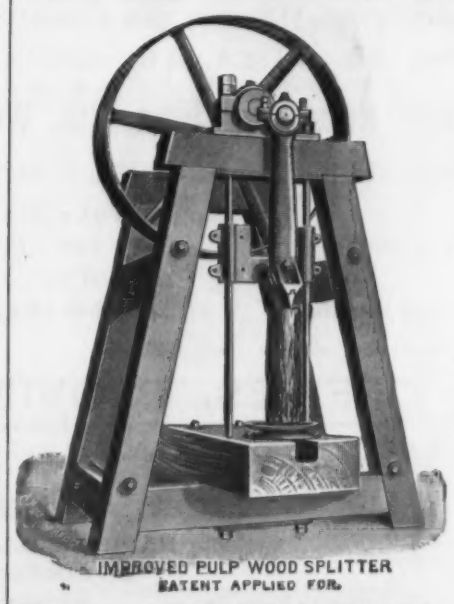
Chicago, Ill. **H. F. WATSON COMPANY,** Erie, Pa.

TREVOR MFG. CO.,

LOCKPORT, N. Y.,

MANUFACTURERS OF

Improved Wood Pulp Machinery.



IMPROVED PULP WOOD SPLITTER PATENT APPLIED FOR.

"Niagara" Grinders,

Double and Single Splitters,

The "Trevor" Improved Wet Machines,

"1890" and "Giant" Barkers,

Cross Sawing Machines,

Drag Saw Machines,

Improved Pulp Wood Slabbing and Sawing Machines,

Knot Borers,

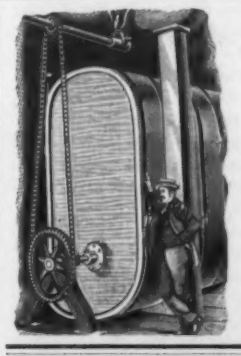
Stuff Pumps,

Double and Triple Plunger Pumps, for general use in Pulp and Paper Mills.

WRITE FOR CATALOGUE C AND DISCOUNTS.

ADDRESS

TREVOR MANUFACTURING CO., Lockport, N. Y.



THE SAVAGE PERFECTING STUFF CHEST.

Fits into a narrow space and requires but little power to operate.

It has a double agitating motion, moving the stuff in different directions, which prevents "floating."

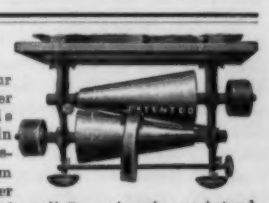
It empties itself clean; no waste of stuff and protects from dirt.

Quantity of stuff in chest always shown by indicator.

PATENTED AND MANUFACTURED BY

E. L. SAVAGE, Mechanic Falls, Me.

THE EVANS FRICTION CONES



Are running forty-four (44) of the best paper machines in this country and in Europe, transmitting from 20 to 40 horse power each. Thousands of small Cones, hanging and standing, in operation, driving all kinds of machinery. Send for Catalogue "G."

EVANS FRICTION CONE CO., 85 Water St., Boston, Mass.

THE "WANDEL"

Patent Rotary STRAINER.

ADVANTAGES:

Regular output of Pulp.
Automatic Cleaning of the Slots.
Automatic Removal of all knots and impurities, thus avoiding their accumulation before the slots.
Avoidance of Stoppage.
Large working ability.
Small requirement of room.
Easy change of cylinder if different widths of slots are wanted.

SIMPLE,
DURABLE,
PERFECT.

Less Power.
Low Cost.
Suitable for all classes of Paper.

The "Wandel" Patent Rotary Strainer is delivered ready for use, with or without the bearing frame. It is working in most of the Paper Mills of Europe and in the THILMANY PULP AND PAPER MILLS, KAUKAUNA, WIS.

FOR FURTHER PARTICULARS APPLY TO

CHR. WANDEL, Reutlingen, Germany.

Or GEORGE HAMILTON, 74 Wall St., New York.

Pressure, Vacuum And Pyrites

ACID PLANTS

Of Highest Capacity Manufactured by

WENDLER & CO.

CARTHAGE, N. Y.

Manufacturing News.

EASTERN STATES.

The old Berkshire Mills, Dalton, Mass., shut down on Saturday, the 21st inst., for one week to make repairs.

The Tileston & Hollingsworth Company, Milton, Mass., has ordered an 86 inch "Aerophor" paper dampener with pump attachments for one of its machines.

The Anchor Mills, Windsor Locks, Conn., shut down last week because of broken gears. The main shaft was bent and was taken out to be repaired.

The Winnipisseogee Paper Company, Franklin, N. H., started to build a new pulp mill last week, directly in rear of the Streeter Mill, and the old mill will be used hereafter as a repair shop. The new mill will be built of brick and one story high, 100 feet long by 30 feet wide. It is to be finished ready to start up by August 1. John W. Dresser, who has been master mechanic for the company for many years, has charge of the construction of the new pulp mill.

A number of the press feeders in Factory No. 2 of the National Folding Box and Paper Company, New Haven, Conn., struck on April 20, and on the following day the feeders in Factory No. 3 went out. Their places have been filled.

In the United States Circuit Court at Portland, Me., a decision of the referee, Judge Enoch Foster, in the case of the Royal River Manufacturing Company, in Yarmouth, against the Forest Paper Company, of the same town, was filed on April 23. The mill of the former company is located on Royal River, below the establishment of the latter company. L. L. Shaw, the manager of the Royal River Paper Company, complained that the refuse from the paper mill clogged his pond, corroded his water wheels and in other ways injured the plant of his company. As long ago as 1885, Mr. Shaw made complaint about the defilement of the water, and in the Legislature of that winter a special act was asked to prevent the throwing in of the waste; but this petition was withdrawn, the parties agreeing to a compromise. Some time last year Mr. Shaw complained that the agreement was not lived up to, and brought suit for $10,000 damages. The Forest Paper Company on the other hand brought a cross action, claiming that the dam at the Royal River Manufacturing Company's mill had flowed the water back on to its wheels in such a way as to impair their efficiency. The cases were brought in the United States courts, but upon agreement between the parties were referred to Judge Enoch Foster as referee. The hearing occupied several days. Judge Foster's decision awards $1,650 damages and costs to the Royal River Manufacturing Company.

MIDDLE STATES.

The Centre Falls Paper Mill, Greenwich, N. Y., was started up last week.

The Queechy Paper Mill, Canaan Four Corners, N. Y., has shut down indefinitely.

The Racquette River Paper Company, Potsdam, N. Y., has put in a "Gotham" screen, built by the Brownville Iron Works, Brownville, N. Y., for use on its 110 inch Fourdrinier machine.

A big paper mill is to be built at Warren, Pa.

The Huntington Paper Mill, at Huntington Mills, Pa., has shut down, perhaps until fall.

The paper mill at Slackwater, Pa., has been sold to George Shulmyer for $23,000.

The Gould Paper Company, Port Leyden, N. Y., has put in a "Gotham" screen, built by the Brownville Iron Works, Brownville, N. Y. This screen will be used on an 86 inch Fourdrinier machine.

A decree was entered on Wednesday before Judge Dallas in the United States Circuit Court at Philadelphia, Pa., for the foreclosure of the mortgage on the American Wood Paper Company's plant. The property, which is to be sold, is located at Roxborough and Spring City, Pa. Recently the court directed that the company must pay the principal and interest on its outstanding $270,000 worth of bonds by the 24th inst. or the foreclosure would take place. Payment was not made and the decree followed. The Girard Trust Company is the trustee under the mortgage.

The Barclay Fibre Company, Saugerties, N. Y., expects to cook its first fibre the coming week from its remodeled plant. It has now equal facilities with anyone for making sulphite fibre.

The Sheffield Manufacturing Company, Saugerties, N. Y., expects to start up on Monday, April 30, for about a two weeks' run to make up stock on hand before the sale in June.

The Bayless Pulp and Paper Company, Binghamton, N. Y., is running its mill full time on a fine line of express paper.

The Rochester Paper Company, Rochester, N. Y., is running one machine out of four at present on news. It will not start the others until trade and prices improve.

Russell & Sons, Penn Yan, N. Y., expect to drop straw paper for a time when their present stock runs out, and will manufacture a different line of wrapping stock.

John T. Andrews, Penn Yan, N. Y., is running his mill regularly. Mr. Andrews has found a field of salt on his property; there are two layers of rock salt, one of 35 feet and one of 95 feet in depth, and if the paper market does not improve the salt market is liable to be overstocked.

WESTERN STATES.

It is said that a paper mill is to be built at La Salle, Ill. The building selected for the purpose was constructed to be used as a distillery, but has not been utilized.

The head of the boiler in the Delaware Paper Mills, at Stratford, near Delaware, Ohio, burst last week. The starting up of the mill, which has been idle for a long time, has consequently been deferred.

That part of the mills belonging to the American Strawboard Company, at Lima Ohio, which was destroyed by fire last summer has been rebuilt, new machinery has been put in and the mills have been started up. The improvements made have been with a view to reducing the cost of production to a minimum.

The new pulp wood docks at Long Tail Point, Wis., will be finished by June 1. About that time the big raft of 17,000 cords, which was tied up at Cat's Head Light last fall, will be brought down and loaded on cars for shipment up the Fox River Valley.

SOUTHERN STATES.

A company has been organized by Captain Pritchard at Tampa, Fla., for the purpose of building a mill to manufacture fibre from palmetto.

Saxon A. Anderson, Marietta, Ga., has purchased the old Kenesaw Flour Mills building, and will convert it into a paper mill. He is looking for metal machinery.

CANADA.

The Riordon Paper Mills, Merritton, Ont., are building a stone warehouse, and the structure is nearly completed. It will increase the storage floor space, and is something which the company has long needed.

Obituary.

SARAH LYDIA GILPIN.

The death of Sarah Lydia Gilpin at Morristown, N. J., on April 13, was an event which re-opened one of the most interesting chapters in the history of American papermaking. She was the eldest daughter of Joshua Gilpin, who toward the close of the eighteenth century established paper mills on the Brandywine Creek, near Wilmington, Del., which were successfully conducted for fifty years by him and his brother Thomas, who in 1816 patented and set up at those mills the first cylinder paper machine operated in the United States. Miss Gilpin was born in 1802. Her early life was spent at Kentmere, the elegant rural home built by her father on the same estate where his commodious and well equipped mills were located. In that mansion was dispensed a liberal hospitality and many eminent men and women were its honored guests. Although a nonagenarian, Miss Gilpin was remarkable for the vigor of her mental faculties. She was a woman of the highest culture. The greater part of her life had been passed in the city of Philadelphia where she was buried.

MRS. A. D. REMINGTON.

Mrs. A. D. Remington, wife of A. D. Remington, president of the Remington Paper Company, Watertown, N. Y., died at her home in that place on Wednesday last. The funeral was held yesterday.

Mrs. Remington had been ailing from a complication of diseases for some time, and about three months ago went to California. She did not receive any benefit, however, and started home in a special car. At Chicago she was detained a week under the care of a physician, and reached home only to grow worse and die. She was sixty-four years of age, and was a very estimable lady, who stood high in the respect and love of all who knew her.

A. J. Truesdale, publisher, Owatonna, Minn., is dead.

Peter Bron, of Bron & Fonte, dealers in wall paper, Chicago, Ill., is dead.

The United States Circuit Court of Appeals handed down a decision this week in the case of the United States *v.* Charles F. Zentgraf as to the proper rate of duty upon importations of ultramarine blue in pulp, classified by the collector under under paragraph 55 of the tariff act at 4½ cents per pound, including the weight of the water contained in the mixture, and claimed by the importer to be dutiable under the same paragraph only on the coloring material contained therein when dry and exclusive of the weight of the water. The court affirmed the action of the collector and reversed the decision of the Circuit Court.

Submarine Foundations Made by Solidifying Sand.

At the recent World's Congress of Engineering in Chicago Dr. Neukirch described a method of solidifying sand in the bottom of a river by converting it into a concrete masonry foundation without being excavated or disturbed. The process consists in using air pressure to force dry powdered hydraulic cement through a pipe down into the bed of sand or gravel. The pipe or tube has a lance-shaped foot perforated with small holes, through which air is forced. The pipe is sunk deep into the sand and gravel bed by forcing air through these holes, which displaces the particles of sand at its foot and allows it to settle.

When the tube has reached a solid substratum the cement is fed into the tube, and the current of air carries it to the foot of the tube and injects it with considerable pressure into the sand and forms a matrix with the sand, gravel and water present. The blowing in of the cement and air in this mobile mixture produces a boiling action at the end of the tube, which thoroughly mixes the cement and sand. As the process goes on and the introduction of the cement continues, the tube is slowly drawn up at a speed which permits the required quantity of cement to be introduced.

As the tube is drawn up and the injection of the air ceases, the grains subside and settle firmly together, occupying a smaller space than before the cement was introduced. Each sinking of the tube gives of course only a column of concrete, its size depending upon the pressure of the air and the looseness of the sand. To insure the solidity of the whole foundation, the pit is divided into small fields from 8 to 12 inches square, and into each field the pipe is sunk and the requisite quantity of cement forced. To limit sharply the lateral dimensions of the foundations and to protect it against outside influences, it is in the first instance surrounded with sheet piling or a cofferdam. —*American Engineer.*

An important electric project in India contemplates the use of a stream, where 3,000,000 cubic feet make a clear drop of 200 feet. Twelve turbines of 1,000 horse power each will be used. A transmission line 110 miles long will be needed. The current will be utilized for power for cotton and other mills, machine shops, pumping, working cranes and elevators, hauling canal boats, street cars, &c., and for lighting purposes.

THE "Hamilton" Felt.

"Best and Most Economical Made."

WISE PAPER MAKERS

don't always want to buy high priced imported Felts, nor do they want to experiment with inferior grades of domestic ones. The "Hamilton" answers their requirements in every respect.

In ordering mention kind of stock used, quality of paper made and speed of machine.

Shuler & Benninghofen, Hamilton, Ohio.

The W. S. Tyler Wire Works Co.,

CLEVELAND, OHIO.

MANUFACTURERS OF

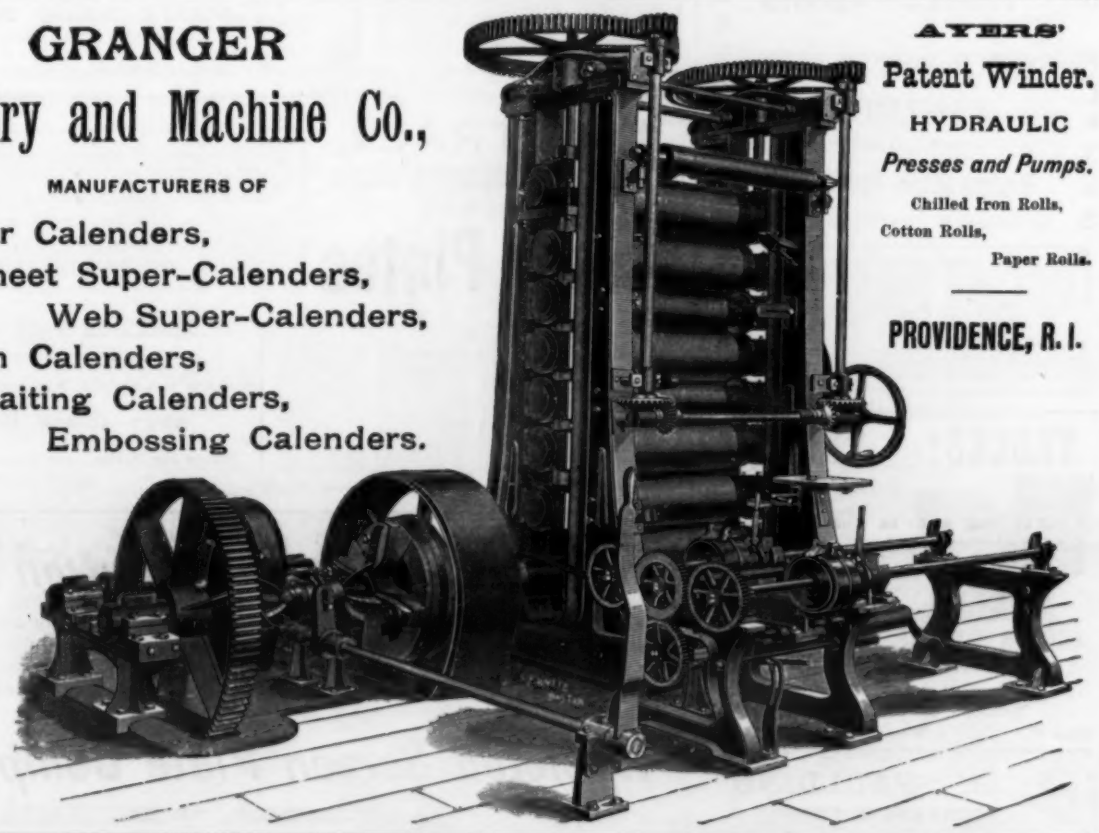
FOURDRINIER WIRES,

Cylinder Faces and Washer Wires.

GRANGER Foundry and Machine Co.,

MANUFACTURERS OF

Breaker Calenders,
Sheet Super-Calenders,
Web Super-Calenders,
Friction Calenders,
Plaiting Calenders,
Embossing Calenders.



AYERS' Patent Winder.

HYDRAULIC *Presses and Pumps.*

Chilled Iron Rolls,
Cotton Rolls,
Paper Rolls.

PROVIDENCE, R. I.

The American Talc Co.,

MANUFACTURERS OF A

SUPERIOR QUALITY OF MINERAL PULP OF ALL GRADES,

PROVIDENCE, R. I.

Mines and Mill: FOWLER, N. Y. | Telegraph Address: GOUVERNEUR, N. Y.

NEW MILL. LATEST MACHINERY. STEAM POWER.

THE GENERAL FIRE EXTINGUISHER COMPANY,

CONTROLLING THE INVENTIONS AND APPARATUS PERTAINING TO AUTOMATIC SPRINKLERS OF

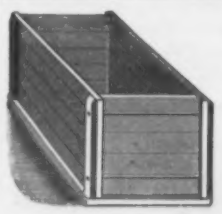
Frederick Grinnell, William Neracher, John Hill, William Kane and others.

INFORMATION AND PROPOSALS FURNISHED AT THE SEVERAL DEPARTMENT AGENCIES, NAMELY:

NEW YORK: 413 Broadway.
PHILADELPHIA: Mutual Life Building.
CHICAGO: 226 La Salle Street.
CLEVELAND: Society for Savings Building.
BOSTON: 173 Devonshire Street.
BUFFALO: City Bank Building.
ST. LOUIS: 710 Odd Fellows Building.
Also at WARREN, OHIO, and COLUMBUS, GA.

AND AT THE

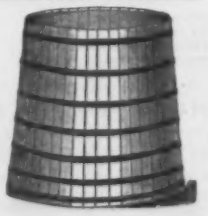
EXECUTIVE OFFICES, PROVIDENCE, R. I.



GEO. WOOLFORD, Manufacturer of all kinds of CEDAR TUBS FOR PAPER MILL WORK, DRAINERS, STUFF CHESTS, WATER TANKS, &c.

In sending for estimates state if measurements are inside or outside and thickness of wood desired.

2240-42-44-46-48 North Ninth St., PHILADELPHIA, PA.



A Chat About Gearing.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By James F. Hobart.

I was in a mill lately and found it "hung up for repairs" to the speed gears in the back line. Two of the gears had stripped themselves pretty clean of teeth for about half way around their perimeters, and upon inquiry I found that this was the third accident of the kind at the same point.

It is evident that the gears were too weak for the work to be done, and should have been discarded for some which are stronger; but if we tell this to the man in charge of that machine, he will probably say, "How am I to know whether or not the gears are strong enough; do you expect me to know more than the man who made the machine? If I did I should want my salary raised."

There is something in that, and the something is why that man doesn't inform himself concerning the data in question, that in reality he may be worth the high salary mentioned, and a man who is really worth it will get it; therefore the investment in knowledge will be first-class and profitable.

Now, then! About gears. I will not go into the figuring of gears, because that will fill a book, and anybody can get the whole business by sending for the published books on gearing.

Gears should be so proportioned that they will conform to certain other requirements than mere strength. One of these requirements concerns the arc of contact on pitch lines, which is the length of that portion of the pitch lines which passes the pitch point during the action of one pair of teeth; but in order that two pairs of teeth at least may be in action at the same instant, its length should be at least double that of the pitch. The whole arc is divided into two parts, the arc of approach and the arc of recess, and in order that the teeth may be of sufficient length to give the required duration of contact, the distance moved over by a point upon the pitch line during the rolling of a rolling curve to describe the face and flank of a tooth, must be in all equal to the length of the required arc of contact. It is customary to make the arcs of approach and recess equal. In this manner we may determine that the teeth are long enough to do the work. We may also see that they are not so long as to be weakened by the excessive leverage which they present while in operation.

The dimensions of the teeth can be figured enough to tell at a glance whether or not the gears are good for the purpose for which they are intended. If gears or toothed wheels were intended to run in one direction only then the teeth could be strengthened by making the backs of a different shape; but as gears must run both ways the sides of the teeth must be made alike or similar to the front. The space between two teeth measured on the pitch circle should be about one-fifth part wider than the thickness of the tooth on the pitch circle; that is, the thickness of tooth $= \frac{4}{11}$ pitch; consequently the width of space $= \frac{5}{11}$ pitch, and the difference of $\frac{1}{11}$ of the pitch is called the back lash. The clearance allowed between the points of the teeth and the bottoms of the spaces between the teeth of the other wheel, should be about $\frac{1}{8}$ of the pitch. The width of a tooth must be so adjusted that when the width or breadth is multiplied by the pitch the product shall contain 1 square inch for each 100 pounds of force transmitted by the teeth.

Taking this view of the matter it becomes necessary to fix the thickness of the tooth before we can go any further, and in order to do this we must consider what kind of strains come on gear teeth. Looking at the broken speed gears we find that the teeth were evidently broken by getting out of line, and then the entire force transmitted was carried by one corner of each tooth, and furthermore the teeth were subjected to a combined twisting and bending action. By a system of elaborate calculations it has been figured out that the teeth must have a thickness equal to the square root of three times the force transmitted, divided by the strength of material of which the gears are made. Then, letting h equal the thickness of tooth,

P—force transmitted,

f—strength of iron (cast);

putting into a formula:

$$h = \sqrt{\frac{3\,P}{f}}$$

Then, considering that 15,000 pounds is the highest strain which can come upon a tooth, the formula calls for

$$h = \sqrt{\frac{3 \times 15000}{45000}} = 1.$$

The tooth should then be 1 inch thick, and the pitch $\frac{1}{8}$ of $1 = 2\frac{1}{2}$ inches. Then the width of the tooth is easily found, for the breadth should be so adjusted that when multiplied by the pitch the product shall contain 1 square inch for each 100 pounds of force transmitted by the teeth. From the above the size of gears can be figured, the points of weakness of existing gears detected, and the proper remedy therefor duly indicated. There are several other points which should be thoroughly understood by men who have to handle gears, and among them is diametrical and circumferential pitch. Now, right out in plain English, diametrical pitch means the number of teeth per inch of diameter. Therefore, if there was one tooth per inch of diameter the corresponding circumferential pitch will be 3.1416. Then again, if there are ten teeth per inch of diameter (take it on a 1 inch gear) the corresponding circumferential pitch will be .3141. For 100 teeth per inch it will be .0314.

To still further illustrate: A gear 10 inches in diameter has thirty teeth. What is the circumferential pitch? The solution is:

$$\frac{3.1416 \times 10}{30} = 1.0472.$$

That is, measured on the pitch line this gear has its teeth 1.0472 inches apart. To properly designate this gear, so as to order one like it, we must say: One 10 inch gear, thirty teeth, 1.0472 inch pitch. By the diametrical pitch method we need only say: "One 10 inch gear, No. 3 pitch," and we get what is wanted without any decimals. A very handy little table to have in a note book is one which gives diametrical pitches with their corresponding circumferential pitches:

Diametrical Pitch or Teeth per Inch in Diameter.	Corresponding Circumferential Pitch.	Diametrical Pitch or Teeth per Inch in Diameter.	Corresponding Circumferential Pitch.
1	3.1416	8	.3927
2	1.5708	9	.349
3	1.0472	10	.3141
4	.7854	12	.2618
5	.6283	14	.2244
6	.5236	16	.1963
7	.4488	20	.1571

To use the table: "What is the circumferential pitch of a gear of 14 inches in diameter, 140 teeth?" $140 \div 14 = 10$ diametrical pitch. Against 10 we find .3141, the circumferential pitch of the gear, or, as would be commonly put, "about 3 to the inch." To find the pitch without the table we must proceed as follows: $14 \times 3.141 = 43.974$ and $43.974 \div 140 = .3141$, or in this particular case we can say: $140 \div 14 = 10$. $3.141 \div 10 = .3141$."

There are several formulas connected with gearing, which may be put in the note book along with that table. We will say: Let P=Pitch—distance between the centres of two adjacent teeth measured on the pitch circle.

D = Pitch diameter.
C = Pitch circumference.
N = Number of teeth.
$\pi = 3.1416$;

then

$$P = \frac{C}{N} \text{ or } \frac{\pi D}{N}$$

$$N = \frac{C}{P} \text{ or } \frac{\pi D}{P}$$

$$C = PN \text{ or } \pi D$$

$$D = \frac{PN}{\pi} \text{ or } \frac{C}{\pi}$$

Next in line come the calculations necessary for ascertaining the sizes of gears for transmitting a given ratio of speed. It is readily seen that we can use the number of teeth as factors in calculating gears, just as we use diameters in figuring pulleys; but to some it may be a new idea that when gears and pulleys are both used on the same transmission we can multiply and divide the numbers of teeth and diameters of pulleys indiscriminately together, as follows: A prime mover runs 300 revolutions per minute; a sixty tooth gear on the main shaft meshes into a twenty tooth gear on the jack; then a 60 inch pulley drives to a 40 inch on the main line, a 36 inch pulley to an 18 inch on the counter, a 30 inch on the counter to a 5 inch pulley on the machine spindle. What is the speed of the machine, not allowing for slip of belt?

Pick out the speed of the prime mover and diameters of all drivers, put them on one side of a line, put all the diameters of the driven pulleys or gears on the other side; then cancel all that is possible; multiply together all that is left on each side of the line and divide one product by the other, as follows:

$$\frac{300 \times 60 \times 60 \times 36 \times 30}{20 \times 40 \times 18 \times 5} = \frac{S}{\times}$$

this cancels down to

$$30 \times 15 \times 36 = 16200$$

Evidently a pretty fast running machine. Four problems and four rules may be evolved from the above operation, to wit:

Problem 1.

The revolutions of driver and driven and the diameter of driven being given to find the diameter of driver?

Rule.—Multiply the diameter of driven by its number of revolutions, and divide by the number of revolutions of driver.

Problem 2.

The diameter and revolutions of the driver being given, required the diameter of the driven to make a given number of revolutions in the same time.

Rule.—Multiply the diameter of the driver by its number of revolutions and divide the product by the required number of revolutions.

Problem 3.

The diameter or number of teeth and number of revolutions of the driver, with the diameter or number of teeth of the driven being given, required the revolutions of the driven.

Rule.—Multiply the diameter or number of teeth of the driver by its number of revolutions and divide by the diameter or number of teeth of the driven.

Problem 4.

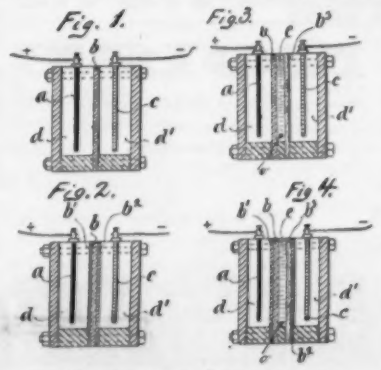
The diameter of driver and driven and the number of revolutions of driven being given, required the number of revolutions of the driver.

Rule.—Multiply the diameter of driven by its number of revolutions and divide by the diameter o. the driver.

Electrolytic Apparatus.

This invention has for its object the provision of means whereby diaphragms of sufficient strength to resist any pressure to which they may be subjected are obtained, and whereby the diaphragms are made proof against the deleterious action of the electrolyte or its components or the products of decomposition.

The invention consists in the construction and nitration of the diaphragms. Figure 1 shows a diaphragm composed of a material containing a nitrated organic substance. Fig. 2 shows a diaphragm mechanically braced or supported on opposite sides by a textile material, that side facing the anode being nitrated or containing nitrated



Electrolytic Apparatus.

organic substances. Fig. 3 shows a diaphragm in which the nitrated membrane or that part which faces the anode is so arranged relatively to the diaphragm proper as to form a cell between the two for the reception of a liquid or semi-liquid that will more or less hinder diffusion between the anode and cathode cells, and Fig. 4 shows a similar diaphragm in which the membranes are reinforced by additional membranes.

The diaphragm b is constructed of an organic substance, animal or vegetable, as for an instance, paper, or parchment paper, felt, leather, textiles, veneer or the like, which is nitrated by saturating the material in a solution of nitric acid, or equivalent solution, or by subjecting the material to the action of a nitrating gas or gases. On the other hand, the nitration may be effected by combining an organic or inorganic material, such as wood or paper pulp or asbestus, with nitro-cellulose, and forming the diaphragm from the compound by molding or pressure, as shown in Fig. 1; the same result may be attained by coating an organic or inorganic material with a nitrocellulose or equivalent material to protect the same against the action of the electrolyte.

In Fig. 2 the diaphragm b, made of any of the materials referred to, is reinforced on both sides by a textile material, b' and b^2, respectively, only one of which, namely the reinforcing sheet b', facing the anode a, is nitrated as described. The object of reinforcing the diaphragm is to enable it to withstand much higher pressures than would be the case otherwise. On the other hand, to prevent diffusion as much as possible, the diaphragm is constructed in the form of a cell for the reception of a semi-fluid or a solid substance, two or a greater number of diaphragms being employed in the construction and arranged to form a cell for the reception of the interposed material. The individual diaphragms may be constructed of a material and treated as set forth.

In Fig. 3 the cell e is formed between two diaphragms, b, b^2, the one, b, facing the anode a, or forming one of the walls of the anode cell d, is nitrated as set forth. In order to impart to these cell diaphragms the necessary strength to resist pressure when they are made of paper or paper parchment, both are reinforced by means of a strong textile fabric or several layers thereof, or with equivalent materials, as leather, gelatine, veneers, asbestus, felt or the like applied to the outer face of the diaphragms b and b^2, as shown at b', b^2, Fig. 4, such reinforcing material, or at least the material b', facing the anode a, being nitrated as described.

In the electrolytical treatment of the chlorides of the alkalies, carbonic acid, for instance, may be introduced into the cell e between the diaphragms by means of a suitable pipe connected with the cell near its bottom, as shown at o, Figs. 3 and 4, or by means of a pipe projecting into the cell to near its bottom, as may be found most convenient, for the purpose of preventing any deleterious action of the electrolyte in the cell e upon the diaphragms by the formation of carbonates or bicarbonates.

Of course it will be understood that the diaphragms referred to are supported in the electrolytic apparatus in suitable frames, between which they are clamped.

Waterproofing Paper.

A patent has been taken out in Berlin, Prussia, by Messrs. Bendix and Debay for the manufacture of a waterproof paper material by means of which there can be obtained a non-stratified (non-laminated) and perfectly homogeneous product of uniform strength throughout its mass, capable of being used for the manufacture of horse-shoes, and also for covering floors, walls of sheds or huts, covering roofs, &c. The method consists essentially in causing the sheets made from the prepared paper pulp to pass before they have become dry (that is to say, before the agglutinants and the waterproofing substances contained in the paper have become solidified by the evaporation of their solvents) in spiral convolutions around a pressure roller in such a manner that the separate layers of paper are caused to lie upon one another, and are pressed together by means of a counter-pressure roller. In this way a very strong homogeneous product is obtained.

The intimate mutual adhesion of the separate prepared sheets of paper and the great strength of this product are dependent upon two factors. First, as the sheets of paper are pressed together before the oily or resinous substance and the agglutinants have become dry, the said sheets can unite intimately with one another without the necessity of using separating layers of adhesive material. Secondly, the above described manner of coiling the sheets of paper has for result a relatively great density, because there are not a number of loose layers of paper being pressed together at one time, but only one loose layer of paper is pressed at one time upon one or more layers of paper which have been previously pressed and thus rendered dense and hard, so that they serve as an efficient support for the still loose layer to be pressed, because they are only slightly less hard than the surface of the roller itself.

The pressure of the rollers acts only upon a single layer of paper at a time, and as it is only of slight thickness the pressure is utilized to its fullest extent. The pressure with which each subsequent and as yet unpressed layer of paper is pressed upon the layers of paper that have already been united by the pressing operation is the same in all cases, and the result is a structureless or homogeneous product of uniform strength or density. Ordinary gelatine, fish glue, or isinglass, chromo-glue, casein, oils, solutions of resin, solutions of caoutchouc, gutta percha, marine glue, and the like may be employed as waterproofing substances and agglutinants in carrying out the process, which may be of importance to other industries as well as that of paper making.—*British Colonial Stationer and Printer.*

The latest invention in ordnance to attract the attention of naval officers is a gun of fibrous pulp compressed into the required form. The inventor is William B. Benson, of Massachusetts. The gun is asserted to be strong enough to meet all requirements, and capable of construction in a short time and at little cost. It can be manufactured in any desired size, from a 13-inch calibre down to the smallest bore used in small arms. It has the merit of lightness of weight, which would permit its employment in the largest size bores even on board vessels of small tonnage. The principal parts of the gun are an outer and inner bushing and a "core." The outer bushing is a thin steel sheeting, the inner bushing is of heavier steel, the thickness of which depends upon the requirements. To the outer bushing are to be attached projections which can be used for trunnions and at the same time make the bushing fast to the "core." The "core" is of fibrous pulp, forced into any required shape at excessive pressure, much as wheels for railway cars are manufactured. The inner bushing will, the inventor says, protect the pulp from ignition from the powder. This bushing can either be rifled or be left smooth. The pulp is said to be of such great tenacity as to sustain the shock of any known explosive.

Legal Decisions.

[SPECIALLY REPORTED FOR THE PAPER TRADE JOURNAL.]

Covenants Against Incumbrances.—Where the statute provides that a warranty deed containing the words "convey and warrant" shall be construed to contain express covenants by the grantor to the grantee, his heirs and assigns, that the premises are free from all incumbrances, "and all covenants shall be obligatory upon any grantor, his heirs and personal representatives, as fully and with like effect as if written at full length in such deed." The statute applies to a deed drawn in the form prescribed by statute, and which set out the exact things warranted by the grantor. A covenant which recites that the grantor covenants, grants and agrees that he, "against all and every person and persons whomsoever lawfully claiming or to claim the same, or any part thereof, shall and will warrant and forever defend," is a covenant against incumbrances. Outstanding city and county taxes at the time the deed is executed constitute a breach of such covenant, and the payment of such taxes by the grantee, before any move is made to collect the same, imposes a liability on the grantor, under the covenant.—*Leddy v. Enos, Supreme Court of Washington, 34 Pac. Rep. 665 (1895).*

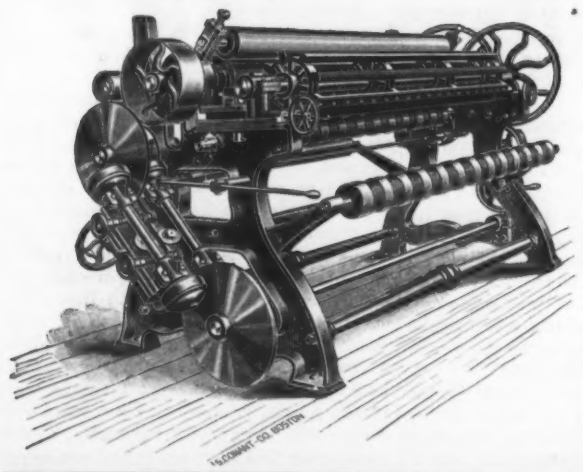
Effect of Death of Partner Before Judgment.—Where a partner dies pending an action against the partnership and his death is not suggested on the record, nor his personal representative substituted, before the rendition of a judgment, the judgment is a lien on the partnership assets and binding on the surviving partners personally, and the creditor may, by order of the court, make the personal representative of the deceased partner a party to the action, and such representative may then show any reason why the judgment should not bind the estate of the deceased partner.—*Sullivan v. Susong (Supreme Court of South Carolina), 18 S. E. Rep. 208 (97).*

Waiver by Parol of Conditions of Policy.—Where an insurance agent, with authority to receive premiums and issue policies, exercises such authority, with notice from insured that there is concurrent insurance on the premises, the company is estopped after a loss to declare the policy forfeited because consent to such concurrent insurance was not indorsed on the policy, as provided for therein. Though an insurance policy provides that none of its conditions can be waived unless such waiver be indorsed thereon, where an authorized agent accepts a premium, having knowledge that a condition of the policy is being violated by the existence of concurrent insurance without an indorsement of consent, the waiver may be shown by parol.—*Hibernia Insurance Company v. Malevinsky (Court of Civil Appeals, of Texas), 24 S. W. Rep., 804 (117).*

Judge Gildersleeve of the Superior Court has appointed Albert U. Faulkner receiver of the University Magazine Company of No. 70 South street, New York, on the application of a majority of the directors—James Wilton Brooks, George S. Olmstead and Mr. Faulkner. It was alleged that the company is unable to meet its obligations. The liabilities are about $7,000. The assets consist of plates valued at $4,500; subscription account, $6,000, and good will, $5,000—that is, if the publication was successful.

As a result of a petition for the dissolution of the Worthington Company, publishers, at No. 747 Broadway, Richard Worthington was arraigned in the Tombs Court yesterday charged with perjury. The complaint was made by Joseph J. Little, the printer. He alleges that on March 12 and 21 Mr. Worthington testified before Referee Willis that in January of last year he discounted certain notes made by Margaret Worthington at the East River National Bank, and when they matured he paid the notes by checks drawn by Margaret Worthington.

No action has yet been taken by the Postmaster General in the matter of awarding a contract for furnishing stamped envelopes during the next four years. With the passage of the Post Office Appropriation bill, an amendment thereto authorizes the Postmaster General to award a contract from the bids recently opened by the Department, and excepts from the act of January 20 last such supplies to the department. While the matter was pending before Congress the Postmaster General declined to hear the protest of the unsuccessful bidders against the award of the contract to James Purcell, of Hudson, N. Y., the lowest bidder. Since the passage of the amendment authorizing him to award a contract he has notified the unsuccessful bidders that he will give them a hearing next Wednesday before finally disposing of the matter.



THE "HORNE" FRICTION CUTTER

IS IN ADVANCE OF ANY CUTTER IN USE TO-DAY.

WE HAVE EIGHT RUNNING IN ONE FINISHING ROOM.

AFTER USING ONE SEVEN MONTHS **A CUSTOMER SAYS:** *"You have the Perfect Cutter. We are sure it will save its cost in one year in the saving of waste paper alone."*

THE J. H. HORNE & SONS CO., LAWRENCE, MASS., U. S. A.,
MANUFACTURERS OF PAPER MILL MACHINERY.

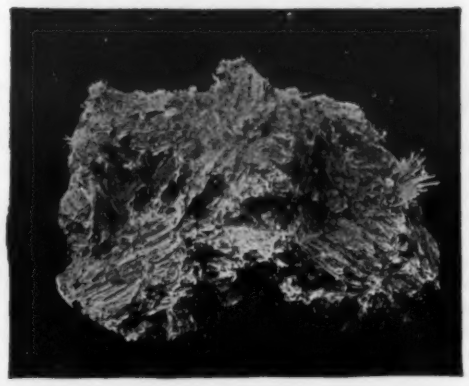
THE GARDNER PULP CO.,

GOUVERNEUR, N. Y.

MANUFACTURERS OF

Asbestos Pulp and Fibrous Talc

FOR PAPER MAKERS.



THE GOTHAM NOISELESS SCREEN.

Screen Plates Stationary. No Accumulations to form Strings and Lumps. Runs at a Slow Speed—150 Revolutions per Minute. Variable Stroke in Blast. The Up Stroke is Double the Speed and of One-Half the Duration of the Down Stroke. A Quick, Forcible Blast Up, with a Slow Suction Down.

IT FILLS THE BILL!

First Screen made October 1, 1891, and used constantly since without repairs. Read the record for two years.

USERS:

NEW YORK—Empire Pulp Co., Black River, 1; Globe Paper Co., Brownville, 1; Union Pulp Co., Carthage, 1; Frontenac Paper Co., Dexter, 1; Leonard & Gilmore, Dexter, 1; Outterson Paper Co., Brownville, 3; Oswego Falls Pulp Co., Fulton, 3; Gouverneur Wood Pulp Co., Gouverneur, 4, two orders; Knowlton Paper Co., Watertown, 1; Ontario Paper Co., Watertown, 1; Herkimer Paper Co., Lyons Falls, 3 orders; G. H. P. Gould, Lyons Falls, 1; Gould Paper Co., Port Leyden, 1; Bacquette River Pulp Co., Colton, 3; Estate of Richard Carter, Glendale, 1; Charles Wackerhagen, Canaan Four Corners, 1; Smeallie, Phillips & Co., Amsterdam, 1; O. E. Martin, Norwood, 1; Jefferson Paper Co., Black River, 1; St. Lawrence Paper Co., Dexter, 3; Payne & Blinn, Chatham, 1; M. M. Pillsbury, Napanock, 1; Victoria Paper Co., Fulton, 2 orders; Niagara Falls Paper Co., Niagara Falls, 16; Philip McGuire, Forestport, 1; Hartland Paper Co., Middleport, 1; Standard Pulp Co., Brown's Falls, 3; Fulton Paper Co., Fulton, 2, two orders; High Falls Sulphite Pulp Co., Potsdam, 4; Watertown Paper Co., Watertown, 1; Lewis, Slocum & Lefevre, Beaver Falls, 3.

NEW JERSEY—Sparks Manufacturing Co., 1.

MASSACHUSETTS—Chas. Callender, Glendale, 2; Merrimac Paper Co., Lawrence, 2; Connecticut River Paper Co., Holyoke, 1; Carew Manufacturing Co., South Hadley Falls, 1; Rice, Barton & Fales, Worcester, 3, two orders; Eaton, Dikeman & Co., Lee, 1; Bacon Paper Co., Lawrence, 1.

VERMONT—Fall Mountain Paper Co., Bellows Falls, 3 orders; Wyman, Flint & Sons, Bellows Falls, 2; National Metal Edge Box Co., Readsboro, 1.

NEW HAMPSHIRE—Glen Manufacturing Co., Berlin Falls, 3; Sugar River Paper Co., Claremont, 1; Wilder & Co., Ashland, 1.

MAINE—Umbagog Pulp Co., Livermore Falls, 2; Bangor Paper Co., Orono, 4; Jay Paper Co., Jay, 1; Rumford Falls Paper Co., Rumford Falls, 20; Hollingsworth & Whitney, Gardiner, 1.

CONNECTICUT—White & Wells, Waterbury, 1.

VIRGINIA—Columbia Paper Co., Buena Vista, 2.

INDIANA—Anderson Paper Co., Anderson, 3.

WISCONSIN—Kaukauna Paper Co., Kaukauna, 1,

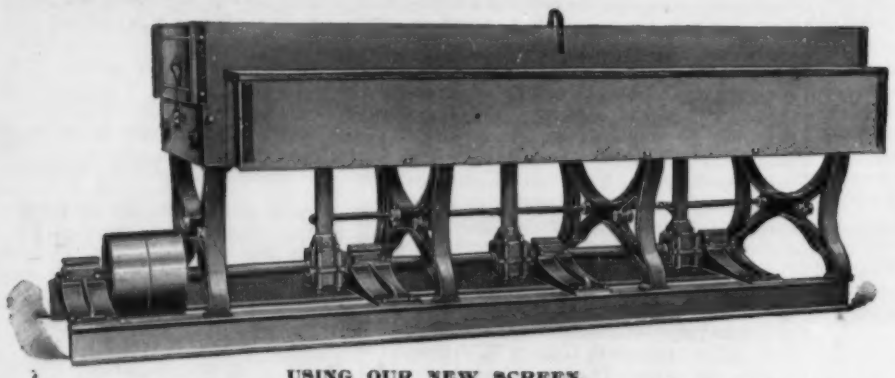
MINNESOTA—St. Cloud Paper Co., St. Cloud, 1.

MICHIGAN—Alpena Sulphite Fibre Co., Alpena, 2,

TENNESSEE—Tennessee Fibre Co., Memphis, 1.

BROWNVILLE IRON WORKS, Brownville, N. Y. ALSO MANUFACTURERS OF Wet Machines, Centrifugal Pumps, &c.

TICONDEROGA MACHINE CO., TICONDEROGA, N. Y.



USING OUR NEW SCREEN.

Glen Manufacturing Co., Berlin Falls, N. H., 13; Barclay Fibre Co., Sangerties, N. Y., 5; Katahdin Pulp and Paper Co., Lincoln, Me., 10; Haverhill Paper Co., Haverhill, Mass., 2; The J. & J. Rogers Co., Ausable Forks, N. Y., 10; New York and Pennsylvania Co., Johnsonburg, Pa., 1; H. J. Roberts, Birmingham, Conn., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 4; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 2

USING OUR OLD SCREEN.

Piscataquis Falls Pulp and Paper Co., Enfield, Me., 12; Howland Falls Pulp Co., Howland, Me., 10; Penobscot Chemical Fibre Co., Great Works, Me., 4; Willamette Pulp and Paper Co., Oregon City, Ore., 1; Bangor Pulp and Paper Co., Basin Mills, Me., 2; Kane's Falls Pulp Co., Fort Ann, N. Y., 2; Westmoreland Paper Co., West Newton, Pa., 6; Dexter Sulphite Pulp and Paper Co., Dexter, N. Y., 3; Otis Falls Pulp Co., Livermore Falls, Me., 3; Michigan Sulphite Co., Port Huron, Mich., 2; Singerly Pulp and Paper Co., Singerly, Md., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 7.

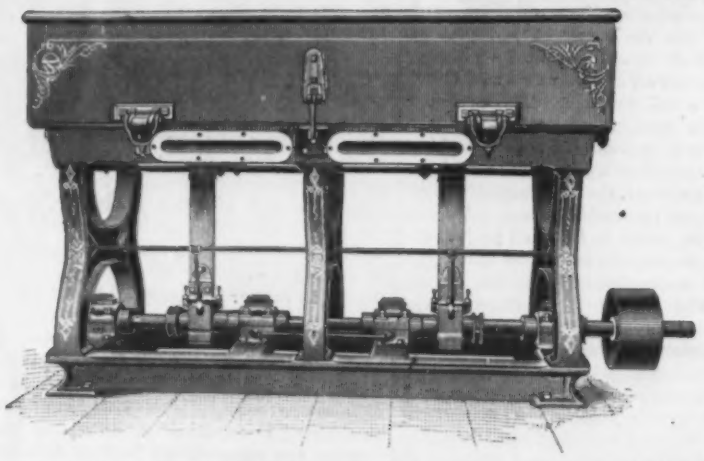
USING OUR BARKERS.

The J. & J. Rogers Co., Ausable Forks, N. Y., 4; Katahdin Pulp and Paper Co., Lincoln, Me., 4; High Falls Sulphite Pulp and Mining Co., Potsdam, N. Y., 2; Glen Manufacturing Co., Berlin Falls, N. H., 4; Oswego Falls Pulp and Paper Co., Fulton, N. Y., 1; Treadwells Mills Pulp and Paper Co., Plattsburgh, N. Y., 3; Shenandoah Pulp Co., Harper's Ferry, W. Va., 3; Miller Bros. & Co., Glen Miller, Ont., Canada, 1; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 6; Kane's Falls Pulp Co., Fort Ann, N. Y., 1; Manufacturing Investment Co., Madison, Me., 9; Umbagog Pulp Co., Livermore Falls, Me., 2; Moosehead Pulp and Paper Co., Solon, Me., 1; Bennington Falls Pulp Co., Middle Falls, N. Y., 1; Saranac River Pulp and Paper Co., Cadyville, N. Y., 1; Smith & Martin, Plattsburgh, N. Y., 1; Otis Falls Pulp Co., Livermore Falls, Me., 1; Hollingsworth & Whitney Co., Waterville, Me., 2; Gilbert & Bell, Waterford, N. Y., 1; Laurentide Pulp Co., Montreal, Canada, 1; Hudson River Pulp and Paper Co., Palmer's Falls, N. Y., 1; Battenkill Paper Co., Greenwich, N. Y., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 1.

MANUFACTURERS OF

COMPOUND AUTOMATIC HIGH SPEED STEAM ENGINES, PAPER MILL AND POWER TRANSMITTING MACHINERY.

SEND FOR CATALOGUE AND BLUE PRINTS.



WE LEAD, AND OTHERS FOLLOW! Over 200 "SUCCESS" Screens in use on all kinds of stock.

"THE SUCCESS" LEADS THEM ALL.

READ THE FOLLOWING LIST OF USERS AND BE CONVINCED:

The Glens Falls Paper Mill Co., Glens Falls and Fort Edward, N. Y.	**90**	The Holyoke Paper Co., Holyoke, Mass.	1
The Hudson River Pulp and Paper Co., Palmer's Falls, N. Y.	**48**	Franklin Paper Co., Holyoke, Mass.	1
The Burgess Sulphite Fibre Co., Berlin Falls, N. Y.	12	Chemical Paper Co., Holyoke, Mass.	2
Marinette and Menominee Paper Co., Marinette, Wis.	8	Beebe & Holbrook Co., Holyoke, Mass.	2
Combined Locks Paper Co., Combined Locks, Wis.	4	A. H. Hubbard Co., Norwich, Conn.	2
Wilkinson Bros. & Co., Derby, Conn.	5	Agawam Paper Co., Mittineague, Mass.	1
Sandy Hill Power and Pulp Co., Sandy Hill, N. Y.	4	The Worthy Paper Co., Mittineague, Mass.	1
The Riverside Paper Co., Holyoke, Mass.	**4**	Chester Paper Co., Huntington, Mass.	1
		Bayless Paper Co., Binghamton, N. Y.	2
		Wagman & Thorp Co., Fort Miller, N. Y.	2
		Moore & Thompson Paper Co., Bellows Falls, Vt.	1
		Allen Bros. Co., Sandy Hill, N. Y.	1
		Hudson River Water Power and Paper Co., Mechanicsville, N. Y.	1
		Ohio Paper Co., Niles, Mich.	1
		Otis Falls Paper Co., Livermore Falls, Me.	19
		J. D. Mulrenan, Hadley, N. Y.	2
		Saranac River Pulp and Paper Co., Cadyville, N. Y.	2
		Herkimer Paper Co., Herkimer, N. Y.	3
		Winnipisiogee Paper Co., Franklin, N. H.	2
		Jas. Ramage Paper Co., Monroe Bridge, Mass.	1
		Wilder & Co., Olcott Falls, Vt.	3
		Syms & Dudley Paper Co., Watervliet, Mich.	2
		The Little Chute Pulp Co., Little Chute, Wis.	4

MADE IN THREE SIZES: SIX, EIGHT AND TEN PLATES.

Wood Pulp Grinders, Improved Patterns.
Wet Machines, Improved Patterns.
Friction Pulleys and Couplings.

OTHER SPECIALTIES:

Double and Single Stuff Pumps, Improved Patterns.
Soft Steel Slitters, Improved Patterns.
Wood Chippers.

FRICTION PULLEY AND MACHINE WORKS, SANDY HILL, N. Y.,

SOLE MANUFACTURERS OF THE "SUCCESS" SCREEN.

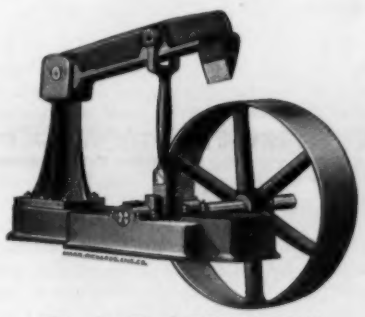
Water Ram in Steam Pipes.

If steam be introduced below the surface of the water contained in a large vessel a bubble will be formed which will increase in size until its surface becomes sufficiently extended to condense the steam more rapidly than it can enter, when a partial vacuum will be created. The bubble will collapse, and the water flowing in from all sides at a high velocity will meet with a blow, forming what is called a water ram.

Such explosions occurring in the middle of the mass create simply a series of sharp noises. But if steam be blown into a large inclined pipe full of water it will rise by difference of gravity to the top of the pipe in the form of a bubble ; and when condensation takes place the water below the bubble will rush up to fill the vacuum, giving a blow directly against the side of the pipe. As the water recedes the bubble gets larger and moves farther and farther up the pipe, the blow each time increasing in intensity, because the steam has passed a larger mass of water, which is forced forward by the coming steam to fill the vacuum.

The maximum effect generally occurs at a closed end. Even if the water does not originally extend to the end of the pipe, if this be filled with steam which has bubbled through water on its way to that point, there may be sufficient cold metal to condense it ; and when collapse takes place the whole mass of water in the pipe is driven against the end, sometimes with sufficient force to rupture it.

A dangerous water ram may be produced in a pipe filled with water, even if the end be open, should the pipe be crowned upward at any part of its length. A bubble will form at the top of the crown, and there collapsing, water will be forced in by atmospheric pressure from one end and by steam pressure from the other, and the meeting of the two columns may rupture the pipe. The same action can occur in a level pipe, but not in one which descends away from the entering steam, so that the water is always above the steam.—*Mechanical World.*



C. A. LAWTON,
DE PERE, WIS.,
Manufacturer of Barkers, Splitters and Saws for Pulp Mills. Shafting and Pulleys a Specialty.
Write for Prices.

CHRISTIANA MACHINE CO.,
Christiana, Pa.,
MANUFACTURERS OF
THE BALANCED GATE
Turbine Wheel.

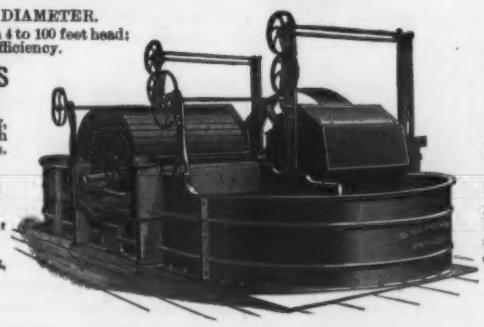
Suitable for Light or Heavy Service.
Globe Outer-Cases and Special Wrought or Cast Iron Flumes,
SUITABLE FOR ANY SITUATION.
GEARING of all kinds, SHAFTING, PULLEYS and everything required for a complete POWER PLANT.
Satisfaction Guaranteed. Designs and Estimates furnished on application. Send for Catalogue.

NEW AMERICAN TURBINE.

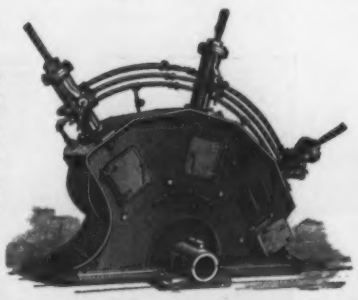
FROM SIX TO SIXTY-SIX INCHES DIAMETER.
Are in practical operation under heads from 4 to 100 feet head; are strong, durable and give high efficiency.

BEATING ENGINES
Cast Iron or Wood Tubs.
Made heavy and strong, double lightered, with well made Cone Washers.

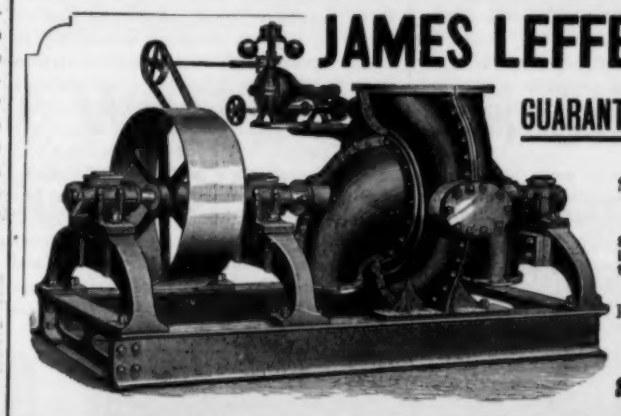
DAYTON GLOBE IRON WORKS CO.,
Successors to STOUT, MILLS & TEMPLE,
Dayton, Ohio, U. S. A.



D. T. MILLS'
WOOD PULP GRINDER
Superior in construction to any made. Capacity, 4,000 to 6,500 pounds extra good pulp per day, dry weight, per each grinder. Hydraulic feeds, fine adjustments; strong and reliable in every way. Two and three pocket machines.
Descriptive Catalogue Sent Free.

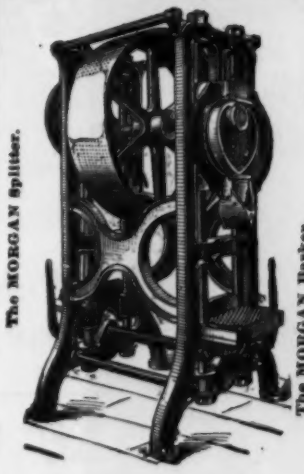


ORGANIZED JULY 1, 1889. CAPITAL, $6,000,000.
AMERICAN STRAW BOARD CO.,
Manufacturers of STRAW BOARDS, PULP LINED BOARDS, Lined Straw Boards, Combination Boards,
BINDERS' BOARDS, FRICTION BOARDS.
"LIGNISTRA."
BUILDING BOARD, PLAIN BOARD, TARRED BOARD, WATERPROOF BOARDS,
Barrel Layers, Peach Baskets, Egg Cases and Fillers.
General Office, PULLMAN BUILDING, CHICAGO.
AGENCIES: NEW YORK, 102, 104, 106 Wooster St. BOSTON, 46 Federal St. PHILADELPHIA, 121-127 N. Fourth St. CINCINNATI, 101-103 Walnut St. CHICAGO, 152-158 Michigan Ave.

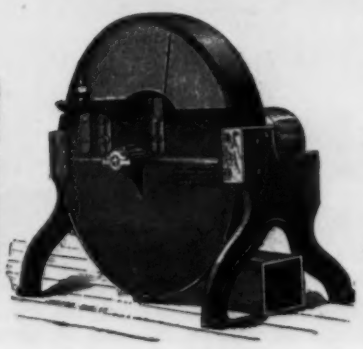


JAMES LEFFEL
GUARANTEED
WATER WHEELS
SIX inches to NINETY-SIX inches diameter, under heads ranging from 2 to 350 feet, in many of the finest paper mills of this country, several companies using TWENTY to THIRTY-TWO Leffel Wheels each.
The New Wheels give HIGHER SPEEDS under low heads, and LOWER SPEEDS under high heads than any Water Wheel now made.
MANY STYLES ON HORIZONTAL SHAFTS
The Company are now in better condition than ever before to supply these justly celebrated Wheels with dispatch and promptness. Send for fine catalogue, nicely illustrated, and write your wants fully. Address
THE JAMES LEFFEL & CO.
SPRINGFIELD, OHIO, or 110 Liberty St., New York City.

APPLETON MACHINE COMPANY,
APPLETON, WIS.,
—MANUFACTURERS OF—
The New Frambach and Badger Pulp Grinders,



The MORGAN Splitter.

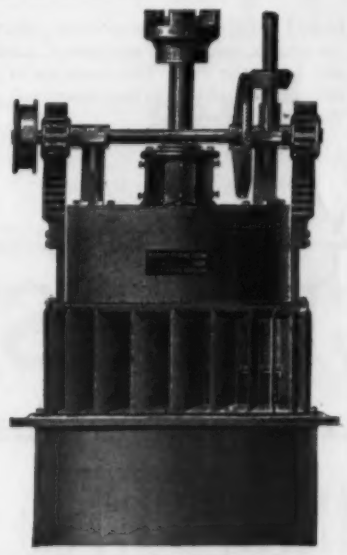


The MORGAN Barker.

Wood Barkers,
Splitters,
Screens,
Bolt Sawing Machines,
Knot Borers,
Chippers,
Sulphur Burners and Wet Machines.

GOODRICH Screen.

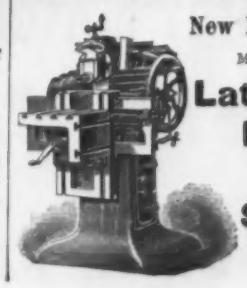
J. & W. JOLLY, MANUFACTURERS OF
McCORMICK'S HOLYOKE TURBINES,
BOTH VERTICAL and HORIZONTAL.
PAPER MILL MACHINERY.
Allen's "Blue Spot" Preventative. Screens and Vats for Paper Machines.
RAG ENGINES AND JORDAN ENGINES MADE AND REFILLED.
Bleach Boilers, Fan Dusters, Ferry's Patent Star Dusters.
PAPER CALENDER ROLLS MADE AND REPAIRED. CHILLED ROLLS. SHEET, SUPER AND WEB CALENDERS.
POWER SUCTION PUMPS, STUFF PUMPS, POWER BOILER PUMPS, SUCTION BOXES AND PLATES, PULLEYS, SHAFTING, GEARING, &c.
HOLYOKE, MASS., U. S. A.



SULPHITE AND ALKALI PULP MILLS.
HARRISON LORING, Engineer and Architect, being both theoretical and practical to a great extent, and having had great experience in designing, building and arranging buildings and machinery in the best manner for successful and economical working, will assist in general arrangement of mills, free of charge, and will construct the best form of Digesters, Acid Plants or other specialties at prices no more than an ordinary profit. A study of the methods of lining digesters enables him to give all desired information, which will be given only in confidence to his customers.
HARRISON LORING CITY POINT WORKS, P. O. BOX 2244, BOSTON.

CYRUS CURRIER & SONS,
NEWARK, N. J.,
Paper Machinery.
KINGSLAND
BEATING ENGINE.

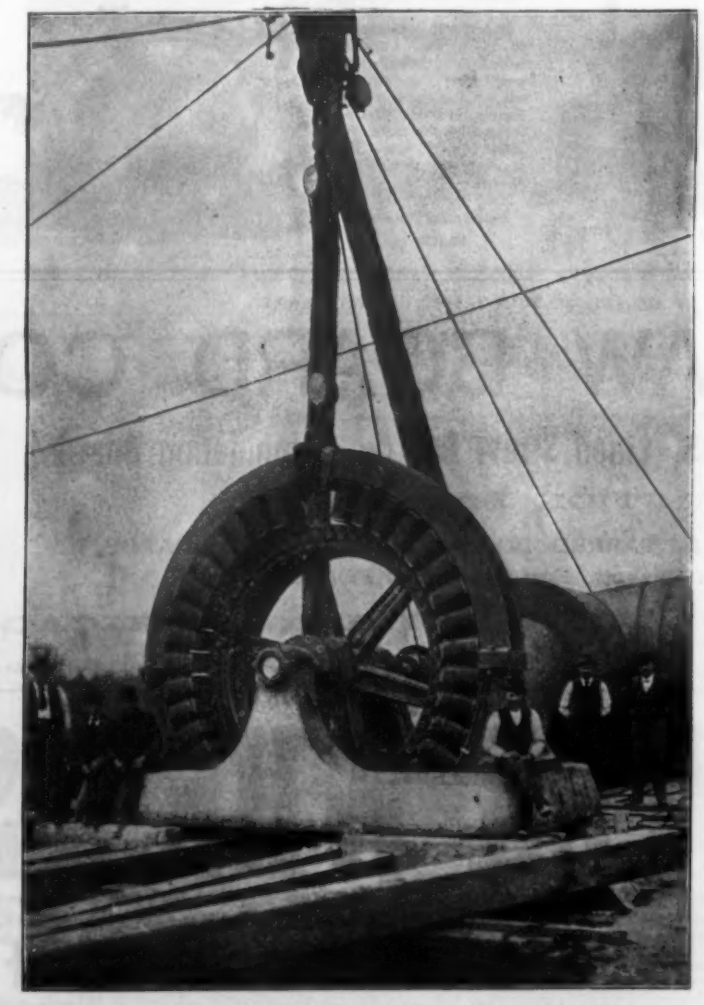
NEW HAVEN MFG. CO.,
New Haven, Conn.,
Manufacturers of



Lathes,
Planers,
Drills,
Slotters,
ETC.

A Mill Driven by Electricity.

The power plant for the Columbia Cotton Mills Company, Columbia S. C., consists of two pairs of 48 inch cylinder gate Victor turbines on a horizontal shaft, with a single 24 inch horizontal Victor turbine for driving the fire pump. The two pairs of 48 inch turbines are connected together, and at each end are directly connected to a generator of 700 horse power capacity (General Electric Company). This is the first instance in America where an entire cotton mill will be driven by electricity. The entire power plant was designed and furnished by the Stilwell-Bierce & Smith-Vaile Company of Dayton, Ohio, in connection with the plans for the mill, which were furnished by Lockwood, Greene & Co., of Boston, Mass.



Dynamos Directly Connected to Victor Water Wheels.

The accompanying illustrations show in one instance the dynamos directly connected to the Victor water wheels, while in the other illustration the Victor wheels are shown in position with direct connection to the dynamos.

Victor Wheels in Position with Direct Connection to Dynamos.

Paper Dyeing in the Pulp.

(Concluded.)

With regard to the order in which dye, soap and sulphate of alumina have to be added to the pulp, some highly important considerations present themselves. If the dye is first added, so that the precipitation of the resin by the alumina takes place in its presence, the best fixing of the color is attained, but at the same time a greater amount of dye is required, as the penetration of the coloring matter into the cells causes a lighter shade to appear for any given amount of dye than would be given if that penetration did not occur. If, on the other hand, the dye is added last, *i. e.*, after the precipitation, it is merely deposited on the outside of the fibre. This economizes coloring matter at the expense of some of the fastness. It must be noted, however, that, if the dye is added first the resin must be added next to prevent the precipitation of the dirty colors often produced by mutual action between the dye and the sulphate of alumina.

In order to test the fixing power of the size for different colors, a great many experiments have been made, adding in all cases 5 per cent. resin soap to the pulp, then the proper amount of sulphate of alumina, and lastly the dye. The waste water from the machine wires was then examined, with the following results:

1. Waste water colorless after using:

Cotton scarlet.	Indulin.
Roccellin.	Indazin.
Crocein orange.	Nigrosin.
Azoflavin.	Brilliant crocein M.
Diphenylamin orange.	Mandarin.
	Orange II.
Metanil yellow.	Phosphin.
Victoria blue.	Bismarck brown.

2. Waste water slightly tinted after using:

Water blue.	Fuchsin.
Saffranin.	Auramin.

Solid green.

3. Waste water strongly colored after using:

Xylidin scarlet.	New blue.
Brilliant ponceau.	Orange G.
Crocein 3 B.	Methylen blue.

Naphthol yellow.

This shows that the basic coal-tar dyes answer best. But even they will not do for a paper containing less size than the above, unless 2.4 per cent. of tannin and as much acetate of soda is also added to the pulp. This addition is desirable, even with strongly-sized pulp, if dark shades are required. Bismarck brown and saffranin have, however, so much affinity for cellulose that the tannin and acetate of soda are rarely required for them.

It must not be forgotten that too quick drying and too hot calendering have a more or less bad effect upon most of the aniline colors and prevent the production of really lively tints.

So much for the use of aniline dyes requiring a mordant. The direct cotton dyes answer splendidly for paper, whether sized or not, but their high price has hitherto caused them to be little in demand among paper manufacturers, except for papier de luxe. In the first rank of them, for pulp dyeing, stand erica (a partial substitute for eosine), brilliant yellow, chrysamine, onyphemine, Congo brown and diamine black. The process of using the substantive dyes is to size first, then to neutralize any excess of acid with the smallest possible quantity of soda, and then to add the dye. If the waste water is not properly clear, a little Glauber's salt may be added.

The following results were obtained in testing colors for fastness to light. The dyed paper was exposed to twenty-five hours of direct sunlight in May:

1. The hue became no brighter:

Crocëin scarlet.
Orange 4 (which turned brown).
Chrysamine.
Ponceau 46 B (which turned brownish).
Oxyphenine.

2. The hue became 5.10 per cent. brighter:

Ponceau 4 R B and 6 R B.
Diamine gold yellow (turned brownish).
Azoflavin (turned brown).

Phosphine.	New blue.
Nigrosin.	Methylen blue.
Mandarin extra.	Indazin.
Chinolin yellow.	Indulin blue.
Auramine.	Diamine black.

3. The hue became 15.30 per cent. brighter.

Fuchsine (turned bluish).
Ponceau (Höchst).
Roccellin.
Crocein orange.
Congo brown.
Victoria blue (became dirty looking).
Saffranin (became yellowish).
Erica.
Diphenylamin orange.
Metanil yellow (went brown).
Water blue.

4. The color faded rapidly:

Eosine.	Erythrosine.
Benzopurpurine.	Chrysoidine.
Bismarck brown.	Malachite green.
Brilliant green.	Methyl violet.

It need only be said in conclusion that if a very high degree of fastness is absolutely necessary, it is advisable to use mineral color, for the coal tar dyes have not yet been sufficiently perfected in that direction for use on paper.—*From Färber Zeitung in Paper Record, London.*

Flywheel Construction.

I have a profound respect for the professional engineer. His presence always impresses me with a sense of reverential awe, and yet misgivings will creep into my mind as to whether his equations are always really equal. In spite of my better judgment I cannot dispel a feeling of insecurity when passing over a high and apparently flimsy trestle, or when ascending several stories in a jerky elevator, wondering in the meantime whether these sudden strains entered into the engineer's calculations when his factors of safety were determined. Let such skepticism be founded on good or bad judgment, it is evidently allied to a sort of horse sense, such as this animal manifests when approaching a structure that has not been tested by his weight. The skillful engineer in designing his various structures doubtless relies much on ample factors of safety; but what is he to do when the nature of the case will not admit of such protections being used? Electrical engineering furnishes examples of this kind, and indeed they are found wherever high speeds in machinery are required. I refer more particularly to the frequent failure of pulleys and flywheels, resulting as they often do in great loss of life and property.

Of course disastrous explosions of both boilers and flywheels will occur so long as boilers run dry and steam engines run away. But pulleys and wheels do burst when their speeds are only slightly accelerated above the normal, showing that a very narrow limit often exists between their regular speed and that necessary to burst them.

An example of this kind came to my notice very recently. A cast iron pulley 6 feet in diameter and speeded at 300 burst into fragments. It was employed on a countershaft between the engine and a large circular saw. At the time the accident occurred the saw was not cutting, so we may infer that the speed of this pulley was slightly accelerated. The engine is controlled by a throttling governor, which probably allowed of a variation of 10 per cent. in speed. From this it is seen that the periphery velocity of this pulley at regular speed was about 90 feet per second; it burst at a speed of 100 feet, or at most 110 feet. From this we may see how small a factor of safety existed in this case.

It is generally understood, I think, that the weight of a flywheel cuts no figure in giving it strength to resist centrifugal force. Professor Torrey says: "Every pound adds just so much to the strain as it adds in holding power." Yet it does make a difference whether or not the metal in the rim, be it thick or thin, is of uniform thickness on all sides. In practice we find a good deal of variation in this—sometimes the result of bad molding, but oftener caused by careless chucking when the wheel is bored. Of course such pulleys are balanced by attaching a sufficient weight to the light side, but herein lies a potent element of danger—weight which produces a bursting strain, but adds nothing to the strength of the rim to resist its action. In view of this it does make a difference whether the rim be thick or thin, for although the balancing effect of this weight is as though it was equally distributed over the whole surface, yet its centrifugal force is concentrated at the point where it is attached, and may be sufficient to cause a rupture that will result in a total wreck.

Take, as an example, a pulley 6 feet in diameter with a counterweight of 30 pounds on one side, the wheel makes 300 revolutions. To use the usual formula for determining centrifugal force, we have

$$\frac{300^2 \times 6 \times 30}{5870} = 2759$$

pounds due to the weight alone. When this is brought to bear on a light rim already weakened by rivet holes, and strained by the force of its own weight, to say nothing of unequal strains that may exist in the casting, we need not be surprised when such a pulley goes to pieces.

Of one thing we may be sure, that modern practice with highly speeded machinery brings us right along the danger line, with very little, if any factor of safety to rely upon. As a further evidence of this I may refer to an incident which took place only a few days ago. I was grinding at an emery wheel when, with a loud crash and in a cloud of dust, the wheel on the other end of the mandrel flew to pieces, one of which was sufficiently large to make a hole through the roof. There is nothing like an object lesson to impress one with the destructiveness of the hidden forces which lurk in every turning wheel.—*American Machinist.*

Professor Neesen recently demonstrated before the Physical Society, Berlin, a method of coating aluminum with other metals. As described, this consists in dipping the aluminum in a solution of caustic potash or soda or of hydrochloric acid until bubbles of gas make their appearance on its surface, whereupon it is dipped into a solution of corrosive sublimate to amalgamate its surface. After a second dipping the metal is placed in a solution of a salt of the desired metal. A film of the latter is rapidly formed, and is so firmly adherent that in the case of silver, gold or copper the plate can be rolled out or polished. When coating with gold or copper it is well to first apply a layer of silver. When thus treated the aluminum may be soldered with ordinary zinc solder.

ALDRICH SYSTEM OF DRYING PAPER.

USING LIVE OR EXHAUST STEAM.

86-INCH MACHINE, 35,789 LBS. 24 HOURS.

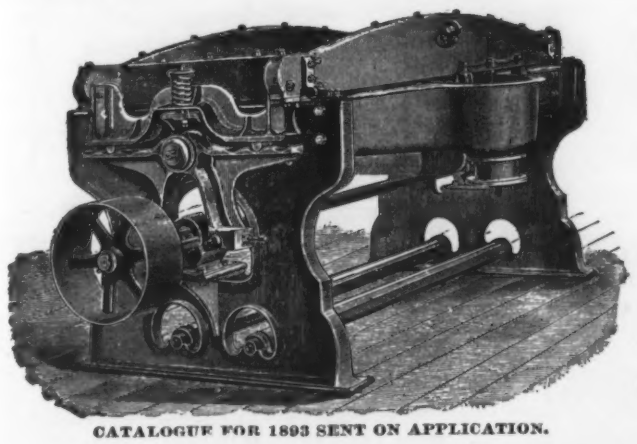
PAPER IS

Dried Uniformly.
Dried at Low Temperature if desired.
Dried Fast as Formed on Wet End.
Dried with Minimum Steam.
Dried with Practically no Vapor from the Machine.

Applied to Any Machine; Large or Small Dryers; High or Low Speed, with Guaranteed Increased Production.

WRITE FOR ESTIMATES.

ROSCOE H. ALDRICH, Consulting and Contracting Engineer, 42 Builders' Exchange, Buffalo, N. Y.



CATALOGUE FOR 1893 SENT ON APPLICATION.

THE

"KEYSTONE" SCREEN.

PATENT PENDING.

The Screen Problem Solved at Last.

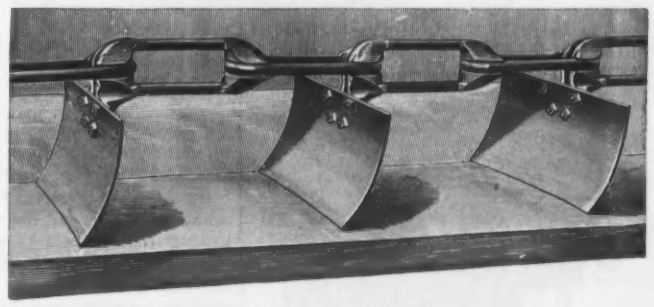
WRITE FOR FULL PARTICULARS.

DOWNINGTOWN MFG. CO., Ltd.,

EAST DOWNINGTOWN, PA.

LINK-BELT ENGINEERING CO., NICETOWN, PHILA.

49 DEY ST., NEW YORK.

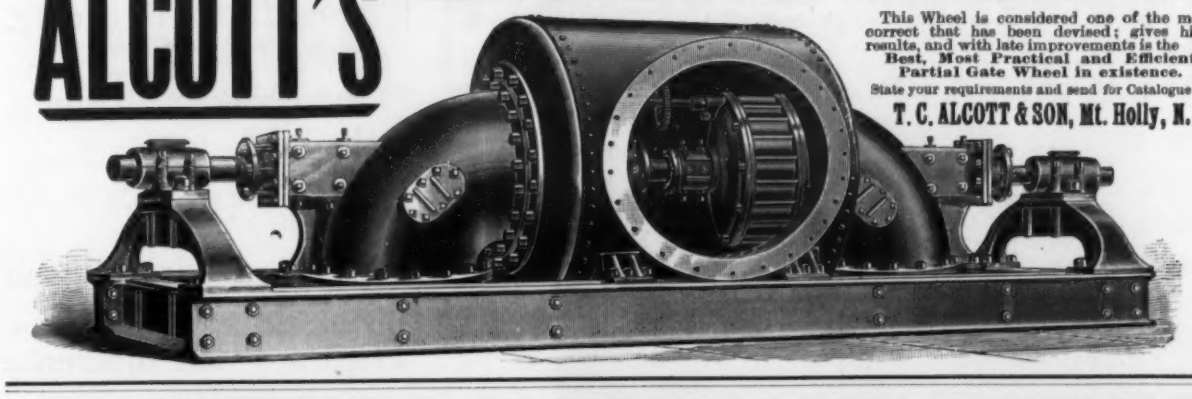


Chip Elevators and Conveyors, Manilla Rope Power Transmission Machinery, Ewart Detachable Link Belting Dodge Chain, Home Chain, &c.

General Eastern Agents for Fibre-Graphite Journal Bearings for shafting and machines. Require no oil or other lubricant. Moderate in price, durable and guaranteed. Bearings furnished to fit hangers now in use.

(CHICAGO: LINK-BELT MACHINERY CO.)

"ALCOTT'S HIGH DUTY TURBINE."



This Wheel is considered one of the most correct that has been devised; gives high results, and with late improvements is the **Best, Most Practical and Efficient Partial Gate Wheel in existence.**

State your requirements and send for Catalogue to

T. C. ALCOTT & SON, Mt. Holly, N. J.

LOMBARD & CO

IMPORTERS AND DEALERS IN

GRINDSTONES

OFFICE AND YARD:
2 Sleeper Street, Boston Wharf, } BOSTON.

NEW CASTLE PULP STONES

A SPECIALTY.

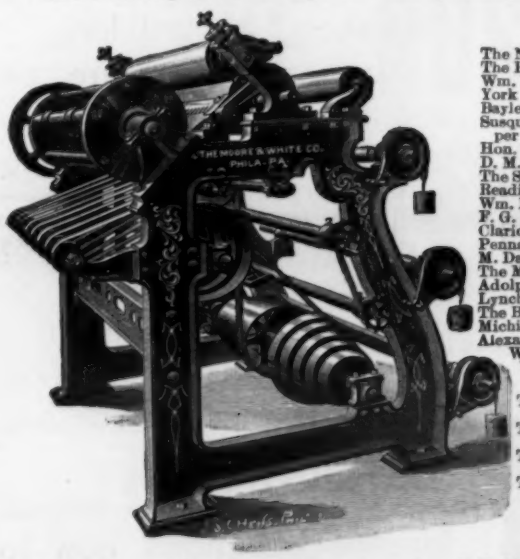
Grindstones of all kinds, mounted and unmounted, for Mills, Factories, Machine and Repair Shops.

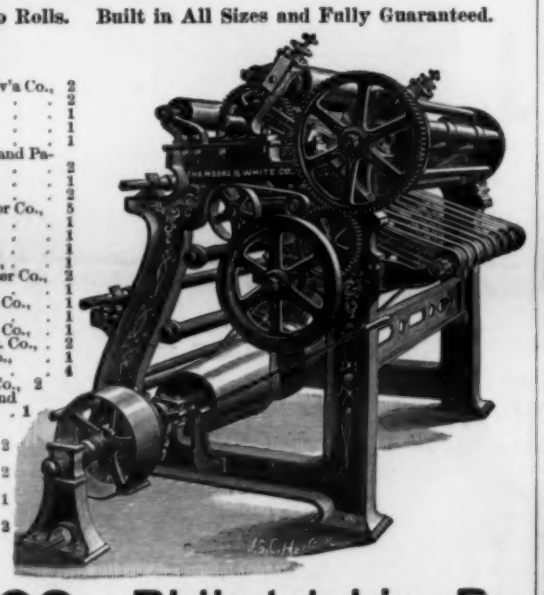
Specially selected GRIT for Paper Knife Grinding.

THE MOORE & WHITE PAPER CUTTER.

CONTINUOUS FEED.

Cuts Perfectly Even and Square. Easily Changed from Sheets to Rolls. Built in All Sizes and Fully Guaranteed.





IN USE BY

The New York and Pennsylv'a Co.,	2
The Pusey & Jones Co.,	2
Wm. Heyser, Agent,	1
York Haven Paper Co.,	1
Bayless Paper Co.,	1
Susquehanna Water Power and Paper Co.,	2
Hon. J. H. McPherson,	1
D. M. Bare & Co.,	2
The Singerly Pulp and Paper Co.,	5
Reading Paper Mills,	1
Wm. Barber,	1
F. G. Weeks,	1
Clarion Pulp and Paper Co.,	1
Pennsylvania Pulp and Paper Co.,	2
M. Dalton,	1
The Morrison & Cass Paper Co.,	1
Adolph Segal,	1
Lynchburg Pulp and Paper Co.,	1
The Buena Vista Paper Mfg. Co.,	2
Michigan Sulphite Fibre Co.,	1
Alexander Balfour & Sons,	4
Wanaque River Paper Co.,	2
Willamette Pulp and Paper Co.,	1
The Morrison & Cass Paper Co.,	2
The Andrew L. Fennessey Co.,	2
The Antietam Paper Co.,	1
The West Virginia Paper Co.,	3

THE MOORE & WHITE CO., Philadelphia, Pa.

PAPER MILL MACHINERY. Friction Clutches. Cut-off Couplings.

It has the Indorsement of Leading Bankers, Chemists and Experts.

USE

It has never been successfully altered since its introduction in 1875.

COMMERCIAL SAFETY PAPER,

TO PREVENT THE "RAISING" OF CHECKS, DRAFTS, ETC.

It is the ONLY PAPER, when once written upon, from which the INK cannot be removed, thereby preventing the "raising" of Checks, Drafts, &c.

—MANUFACTURED BY—

MOUNT HOLLY PAPER COMPANY, MOUNT HOLLY SPRINGS, PA., U. S. A.

Also Manufacture a Tub Sized and Loft Dried Map Paper that will not shrink or distort, especially adapted for Printing in Colors, as well as Flat and Folded Ruled Papers of every description.

BIGGS BOILER CO., AKRON, OHIO,

—MANUFACTURERS OF—

ROTARY GLOBE BLEACHING BOILERS

For Rags, Rope, Tow, Straw and other Paper Materials.

—ALSO ALL KINDS OF—

Boilers and Heavy Sheet and Boiler Iron Work for Paper Mills a Specialty.

CORRESPONDENCE SOLICITED. SEND FOR CATALOGUE.

Respectfully refer you to

PEORIA STRAW BOARD CO.	Peoria, Ill.	MONROE SEIBERLING	Kokomo, Ind.
MONTREAL PAPER CO.	Montreal, Canada.	W. K. SHELLY	Tiffin, Ohio.
AMERICAN STRAW BOARD CO.	Lockport, Ills.	AMERICAN STRAW BOARD CO.	Barberton, Ohio.
AMERICAN PULP AND PAPER CO.	Tiffin, Ohio.	O. C. BARBER	Akron, Ohio.
CROWN PAPER CO.	San Francisco, Cal.	H. P. HITCHCOCK	"
VINCENNES PAPER CO.	Vincennes, Ind.	A. P. BALDWIN	"
ELKHART COMBINATION BOARD CO.	Elkhart, Ind.	J. F. SEIBERLING	"
ANCRAM PAPER MILLS	Ancram, N. Y.	D. E. HILL	"
S. D. ROSENBAUM	San Francisco, Cal.	A. L. CONGER	"

AMERICAN STRAW BOARD CO., Quincy, Ill.

PAUL S. REEVES PHILADELPHIA

MANUFACTURER OF

BRONZE,

Especially adapted to resist the action of SULPHITE SOLUTIONS in PULP MACHINERY.

COMPOSITION SHELLS A SPECIALTY.

Phosphor Bronze, Brass, Babbitt Metals.

65,000,000 GALLONS OF WATER A DAY

Are Purified in PAPER and PULP MILLS by the use of the

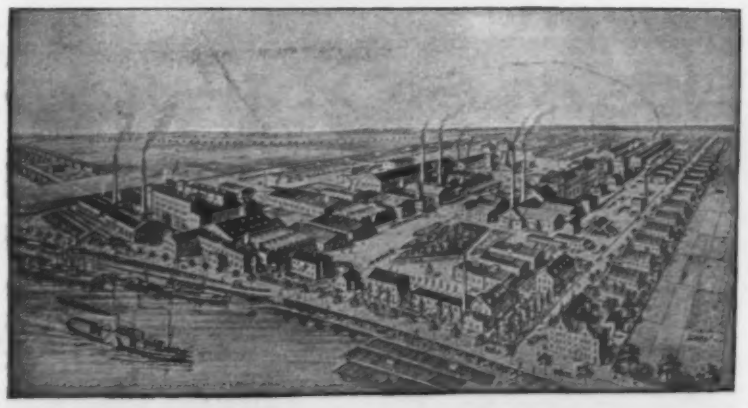
A PAPER MAKER'S INVENTION FOR PAPER MAKERS' USE.

WARREN FILTER,

MANUFACTURED BY

CUMBERLAND MFG. CO., Boston.

WALDHOF SULPHITE PULP CO.,



MANUFACTURERS OF

SULPHITE WOOD PULP,

Dry, Unbleached and Bleached,

OF ALWAYS EVEN QUALITY.

TRADE MARK.

RUDOLF HELWIG,

Sole Agent for the United States and Canada,

Temple Court Building, - - Cor. Beekman and Nassau Streets, New York.

YOU CAN USE THE AEROPHOR TRADE AEROPHOR MARK. PAPER DAMPENER

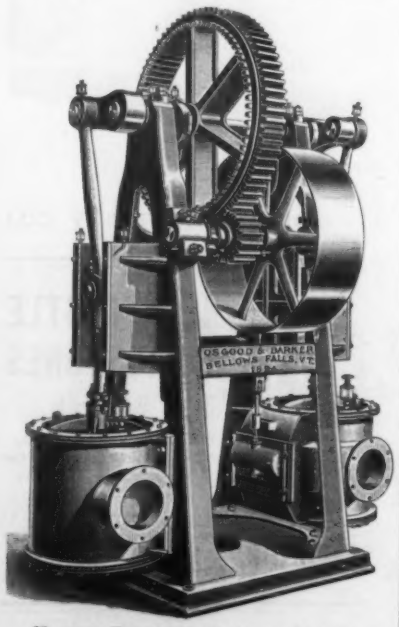
MANUFACTURED BY

THE U. S. AEROPHOR AIR MOISTENING AND VENTILATING CO., 111 Pine Street, Providence, R. I.

ON ALL YOUR MACHINES AND IMPROVE THE FINISH QUALITY OF YOUR NEWS, BOOK AND MANILLA.

Vacuum Pump.

The accompanying illustration represents a new vacuum pump for sulphite plants which has but recently been placed on the market by Osgood & Barker, Bellows Falls, Vt. This pump is made in two sizes—the No. 1 with an 18 inch cylinder and 15 inch stroke, and the No. 2 with a 24 inch cylinder and 18 inch stroke. The pump stands 10½ feet high, and occupies about 64



VACUUM PUMP FOR SULPHITE PLANTS.

square feet of floor space, and is driven with a pair of gears; the large gear a mortise rim 4 feet in diameter, the pinions being machine cut. The cylinders and all of the parts coming in contact with sulphurous acid are made of phosphor bronze, the pump complete weighing 4 tons.

Although the first pump of the large size has been built less than a year the Osgood & Barker pumps have already made a record for themselves. One of the best sulphite fibre makers in the country says:

We are running your 24x18 inch double cylinder vacuum pump at twenty-four revolutions per minute. It is working smoothly, and has never given us any trouble by heating or cutting. It is doing the best work from a chemical point of view that I have seen in any pump yet.

At this slow speed we have made 34,000 gallons liquors in twenty-four hours, 6.5° Baumé A, and I don't believe any other pump has a better record at the same displacement.

We are about to slow down the speed a little, as it is running faster than it needs to, and after this is done it will accomplish the same results as before.

By referring to another column it will be seen that this is not the only pump for the use of sulphite plants which Osgood & Barker build. Their acid pumps are meeting with favor, and their last shipment of this kind of pumps was fourteen to one concern.

Real Efficiency of the Boiler.

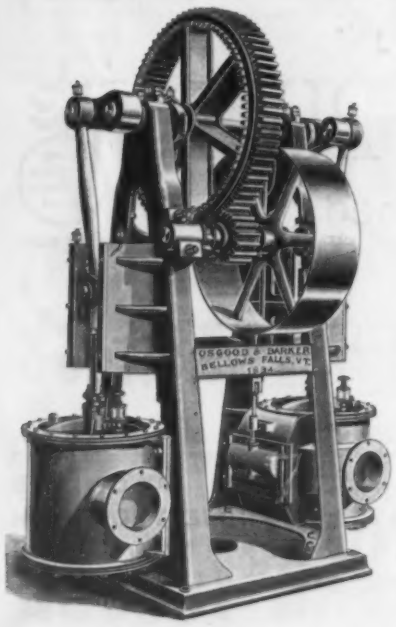
Much importance is attached, and properly so, to low uptake temperature in steam boiler tests and steam boiler practice, but the fact must not be lost sight of that the real efficiency of the boiler is the difference between the furnace temperature and the uptake temperature, divided by the former value. A low uptake temperature can be had with very poor efficiency by maintaining a low rate of combustion and a comparatively cool furnace, while a considerable increase in uptake temperature can be afforded if the rate of combustion and furnace temperature is correspondingly increased. It is to this fact that tests with comparatively high uptake temperatures are occasionally found to give high results as to efficiency. Of course the highest furnace temperature with the lowest uptake temperature, when the reduction of temperature has been by absorption in the heating surface, will give the best results. —*Power*.

An engineer finds chalk admirable to extract oil from a saturated belt. A large piece of chalk was held against the belt while running and the chalk afterwards scraped off. The operation was repeated several times once an hour.

SOS

OSGOOD & BARKER, BELLOWS FALLS, VT.

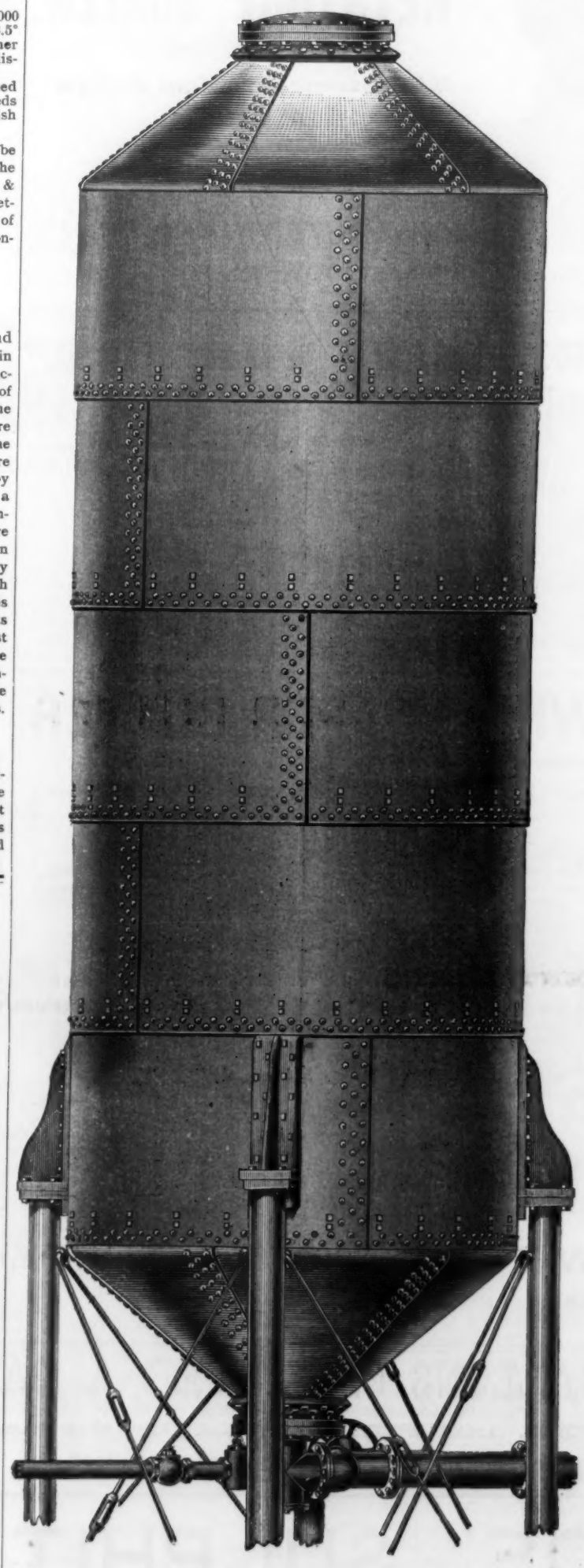
VACUUM PUMP.



MANUFACTURE

Sulphite Plants,
Sulphur Burners,
Vacuum Pumps,
Acid Pumps,
Stuff Pumps,
Fan Pumps,
Cutting-Off Saws,
Knotting Saws,
Upright Barkers,
Horizontal Barkers,
Stub Barkers,
Knot Boring Machines,
Chippers,
Screens,
Presses.
Also all kinds of Paper Machinery,

WRITE FOR DESCRIPTIONS AND PRICES.



He Was Too Fresh.

"Where are you going, my pretty maid?"

"I'm going a bathing, sir," she said.

"May I go with you, my pretty maid?"

"The water is too salt for you," she said.

There's a vast difference between a fresh man and a fresh idea.

Fact is, too many of the ideas in sulphite have "whiskers" a yard long.

Moss and moisture on and around a Digester suggest freshness of the wrong sort.

The man who has an idea on sulphite, warranted to wash and hold its color,

Guaranteed not to fray out at the bottom or bag at the knees,

Won't be on his uppers long if he knows how to place it.

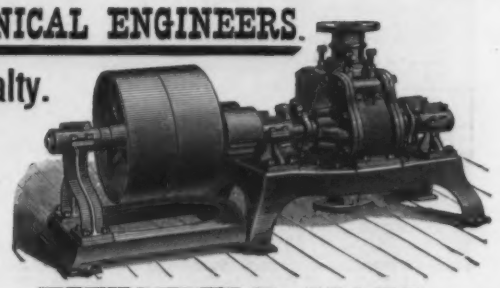
We are closing the biggest contract of the year this week.

FRIEND & STEBBINS MFG. CO., WEST CARROLLTON, OHIO.

E. D. JONES & SONS CO.

MILLWRIGHTS AND MECHANICAL ENGINEERS.

Paper Mill Plans a Specialty.



PITTSFIELD, MASS.

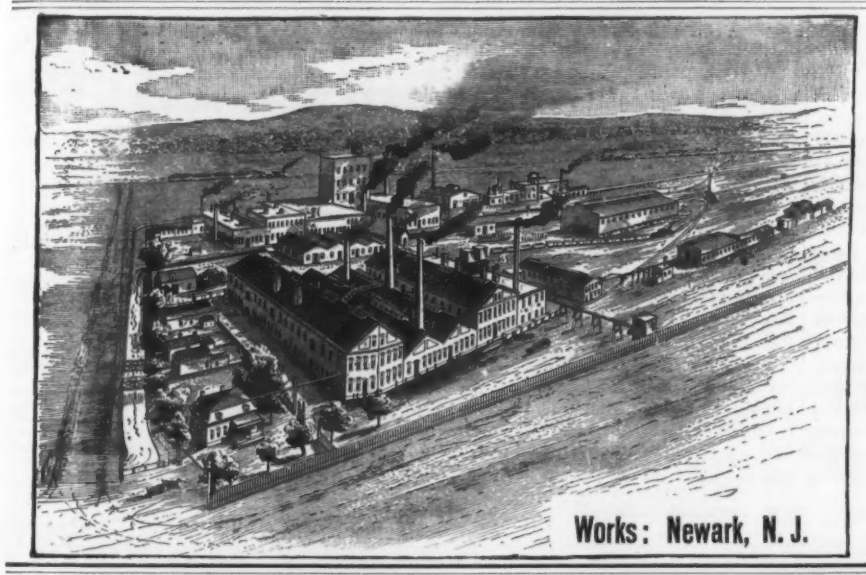
ALSO MANUFACTURERS OF

Improved Patent Rag Engines, Dusters, Elevators, Etc.

CROCKER'S

Rotary Pumps and Turbine Water Wheels.

SHAFTING, PULLEYS, HANGERS AND GEARING.


Works: Newark, N. J.

THE HELLER & MERZ CO.,

PROPRIETORS OF THE

AMERICAN ULTRAMARINE and GLOBE ANILINE WORKS,

55 MAIDEN LANE, NEW YORK.

Brands for Paper Makers: RC, #4, RSxx, APR, X

ULTRAMARINE FOR PAPER MAKERS.

SUPERIOR QUALITIES.

Aniline Colors of all Shades. Samples Matched.

ANDREW G. PAUL SYSTEM FOR PAPER MACHINES.

IT WILL

AUTOMATICALLY KEEP THE DRYERS FREE FROM AIR AND WATER.
INCREASE THE DRYING CAPACITY OF YOUR MACHINES.
GIVE A UNIFORM TEMPERATURE THROUGHOUT THE CYLINDERS.
CIRCULATE EXHAUST STEAM WITHOUT BACK PRESSURE IN PAPER MACHINES.
CIRCULATE EXHAUST STEAM WITHOUT BACK PRESSURE IN LOFTS AND HEATING CIRCULATIONS.
PROVE ITSELF THE MOST ECONOMICAL SYSTEM OF HEATING BY STEAM.

NEW ENGLAND ENGINEERING COMPANY, 79 Milk St., BOSTON.

THIS SYSTEM CAN BE APPLIED TO ANY PAPER MACHINE. *ESTIMATES FURNISHED FOR APPLYING SAME.*

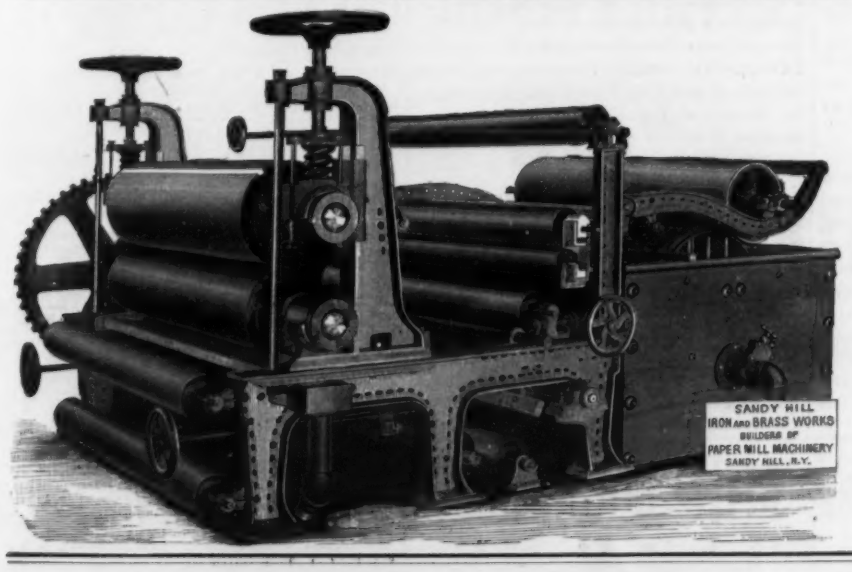
THE RUSSELL CEMENT LINED DIGESTER.

The **Russell Patent** covers every description of Acid Proof Cement Lining and can be applied to any form of Sulphite Digester in use. This Lining for Sulphite Digesters is now in constant operation in many of the largest mills in the country, **more than thirty Digesters being lined with the RUSSELL CEMENT LINING,** and in every case it has given entire satisfaction and proved itself to be a **Perfect Lining.**

IT IS THOROUGHLY ACID PROOF.
IT IS EASILY APPLIED.
IT IS DURABLE AND IMPROVES RATHER THAN DETERIORATES BY USE.
IT PREVENTS RADIATION OF HEAT, AND THUS EFFECTS GREAT SAVING OF STEAM AND INSURES EVEN COOKING OF ENTIRE CONTENTS.
IN THE "ONE METAL" DIGESTER IT PREVENTS CORROSION AND THE DANGEROUS EXPANSION OF THE BRONZE.

Manufacturers of Sulphite Pulp and those intending to build Sulphite Mills are invited to examine into the merits of the *Russell Cement Lining.* Correspondence solicited. All inquiries cheerfully answered,

THE AMERICAN SULPHITE PULP CO., 85 WATER STREET, BOSTON, MASS.

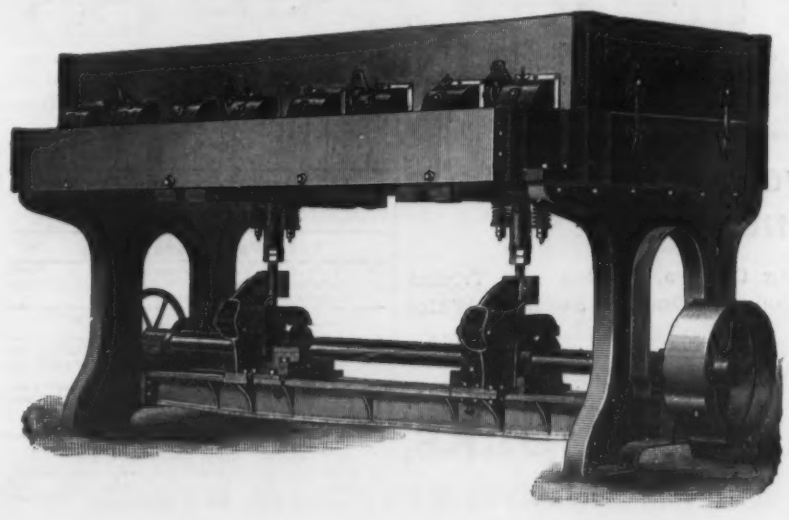


IMPROVED WET MACHINE.

Cut shows our 66 inch Machine, with Brass Cylinder Mold, Rubber Coucher, Spring Pressure Stands, Chilled Iron Bottom and Hard Maple Top Press Rolls, Sprocket Drive. We make this Machine with a Suction Box if desired.

DESCRIPTIVE CIRCULAR MAILED ON APPLICATION.

Sandy Hill Iron and Brass Works,
SANDY HILL, N. Y.



THE MILLIKEN
NOISELESS PULP SCREEN.

SIMPLE, DURABLE, PERFECT, COMPACT.
COMPLETE, NOISELESS, NO STRINGS, LESS POWER.

Plates are sure to last longer, and but two-thirds the number being necessary. No waste of stock when washing up.

Occupies a small space; a simple, solid built flooring the only foundation necessary.
Six (6) hours' time only required to put in position ready for work.
Excellent work accomplished with eight (8) plates and 11-1000 screen plate.
In ordering the Screens no particulars are required.

IT HAS NO EQUAL AS TO SCREENING QUALITIES, CAPACITY AND SAVING OF STOCK.

WARRANTED. THREE MONTHS' TRIAL GIVEN. ADDRESS

C. R. MILLIKEN, PORTLAND, ME.

"The Problem in Front."

It is conceded that the depression which has settled upon the entire business world is in part due to overproduction and its effect upon market prices. There seems to be a regular recurrence of periods of overproduction and depression, each more disastrous than its predecessors. The old Malthusian doctrine of the increase of production falling behind the increase of population has been exploded, and we are facing the more serious problem of how to make population and production balance each other, and at the same time keep our vast and ever increasing army of laborers employed continuously. The ameliorating effects of machinery on the one hand seem to be more than counterbalanced by the continual danger of overproduction, depression and disaster on the other. Is there a happy middle ground which offers at the same time a sufficiently promising field for energy and the stable conditions so necessary for the comfort and well being of the masses of mankind, or must the working man face a future which forever swings him, pendulum-like, from the heights of prosperity to the depths of misery?

The following, from the *Age of Steel*, commends itself to every business man, and especially to that class denominated inventors:

One of the most serious problems ever confronting the human race is now face to face with modern conditions. It has to do not only with many of the industrial questions over which we are scratching our heads, but with the conditions of the working and commercial world in the future.

Will the increase of power to consume, absorb not only the product of our present industrial equipment, but will it be equal to all that can result from a further and so-called progressive augmentation of productive power? In other words, can there be an excess of mechanical facilities, as there may be of the product and the producer?

It is popular to talk of progress and invention, to point with pride to superior methods and to pile up a huge mass of statistics proving our immense wealth, though a large percentage of what figures in the sum is dumped in corners and warehouses waiting for the auctioneer or the sheriff. It is also one thing to note the evolutionary process of human genius and another to distinguish between its rightful use and its commercial waste or abuse. We are of those who believe that human needs and human genius are parallel lines, and that they will always continue to be so, every mechanical appliance fitting a corresponding notch in the cog-wheel of human want. To this all industrial history gives assent. It is, however, equally as true and as forcibly certain that we may abuse the means, and by so doing reverse the original purpose. Cupidity and competition can be equally mischievous and active with improved machinery as with their brains and fingers. Hence production can be rushed into even criminal extremes, compelling organizations to restrict output and forcing values into crisis conditions, resulting in what is very velvety covered over as unaccountable depression or recurring periods of stagnation.

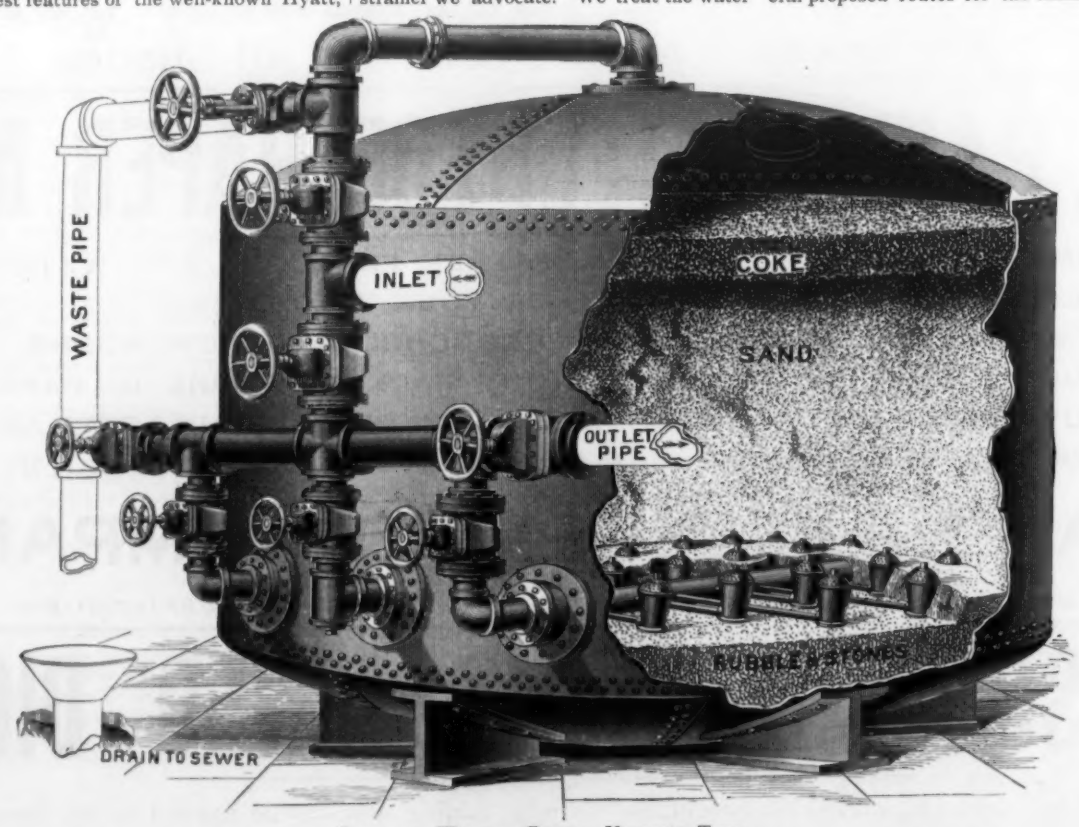
It is as plain as a pikestaff and as incontrevertible as the multiplication table that if we produce more than we can sell, and by the same process diminish the purchasing power of the consumer, we are getting the string into a tangle and making knots easier made than untied. Here lies the gravest problem of the age, in the solution of which we are running into huge corporations on one side and organized strikes on the other.

The enormous difference in the unit of production can only be approximately estimated by comparison. In wood working machinery the labor of one man now equals that of 100 in less than three generations. In the manufacture of watches a single operator in an American factory can turn out from 250 to 300 watches in one year, labor being displaced at the rate of 85 per cent. In paper making and leather industries the labor displaced averages 95 per cent. As many horseshoes can be turned out in one day as 500 blacksmiths could make in the same time with anvil and hammer, and a single nail working machine can produce for each labor unit employed more nails than 1,000 men could shape by hand. It has been calculated by Mulhall that the productive power of one unit of American agricultural labor is equal to that of nine in Europe. In cotton spinning one man and two boys can produce as much yarn as 1,100 spinners some years ago, while one weaver can now produce nearly fifty times as much as his great-grandfather could do.

These facts are capable of indefinite multiplication, and illustrate the phenomenal progress made since the days of Watt, Arkwright, Hargreaves and others. That the world generally has been benefited, no sane man can doubt. What has been locally a misfortune has been universally a blessing, and we must accept temporary displacements of labor as part of the necessary if unpleasant process of human betterment. It is not machinery that has cursed the world, but its abuse and malappropriation for purposes of cupidity and monopoly. To remedy this, both labor and capital the world over are making efforts to restrict production, in order to secure living values for investments and labor. There will probably be no end to this struggle, though men may yet learn the folly of overcrowding the market for personal gains.

Sectional Washing Filter—Vertical Type.

An illustration is presented of the New York Filter Company's vertical type of sectional washing filters, which embodies the best features of the well-known Hyatt, National American and Blessing types of filters heretofore on the market, and having the experience of these pioneers in the filter business to fall back upon the features selected in the New York Filter Company's standard filter are those which ten years' practical use has demonstrated to be the best. One very important point is the sectional wash feature, whereby the full force of the reverse current, when washing, is directed against only one-third of the filter bed at once, and cleans the bed perfectly. This system enables the company to do away with complicated machinery for stirring and agitating the beds, in order to break them up and keep them clean. A coagulating device is furnished with the filters, so that water of uniform clearness and brightness can always be depended upon. Manufactories which have been compelled to shut down in time of freshets will appreciate the importance of this point. This filter is rapidly making its way into paper, textile mills, &c., manufacturers to whose attention it is brought readily recognizing its merits and usefulness. It saves its cost in a very short time, and where used has proved an important factor in the improved quality of the work produced; for the paper mill and dye house it makes the water, no matter what its original condition, of uniform clearness and brightness. It also effects great saving in the operation of a boiler plant.



SECTIONAL WASHING FILTER—VERTICAL TYPE.

The various possibilities of its use are touched upon by the New York Filter Company, in its trade letter as follows: "We are placing a great many of our filters in connection with paper mills, bleacheries, dye houses and woolen mills, filtering the water and removing from it properties that are detrimental, such as iron or rust, which would come from the water works mains, vegetable matter, grease, &c. If you will kindly let us know the amount of water you are using per minute, or hour, we shall be pleased to give an estimate, guaranteeing satisfactory results. You can see by our catalogue that we have put out 100 of our filters for nearly every class of business, and as we have some sixty-five cities and towns using our filters successfully we feel that the matter should be of interest to you. You must bear in mind that this is not a strainer we advocate. We treat the water chemically at the same time we are purifying it, and before it is filtered."

In paper mills alone the New York Filter Company's filters are now filtering over 58,000,000 per diem. Manufacturers are invited to write to the New York Filter Company for its large descriptive catalogue, which has considerable valuable information relating to water purification in general, and which it sends out only on application.

New uses for aluminum are constantly appearing. The metal is about to be used extensively in Paris in the construction of cabs. The aluminum boat, sent out to the Niger by the French Government, is reported to be a successful experiment. It is about 40 feet long, 6 feet wide and 2½ feet deep, has three masts and a deck cabin as well as a movable deck tent or pavilion.

Paper spindles for yarn spinning are now made as a substitute for the heavier steel spindles in ordinary use, thus economizing in motive power. In making these spindles common paper pulp stock is run into a mold, producing a spindle of four times the diameter fixed upon. This rough spindle is then compressed by hydraulic power in another mold of the size required, with the result that it is perfectly formed, hard and tough, with a surface that when polished is said to be hard as metal.

A Great Canal Project.

A great canal project, which, if successful, will entirely revolutionize the traffic of the great lakes, is said to be in contemplation by a number of capitalists in Chicago, New York, Boston and London.

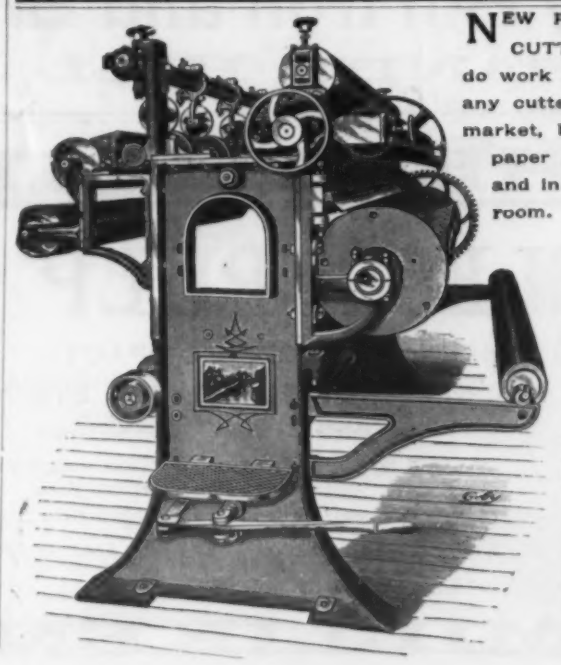
The proposed canal is designed to facilitate the passage of vessels from Chicago, Milwaukee and other Northwestern points to the East and to render entirely unnecessary the present long route through the Straits of Makinaw, Lake Huron, St. Clair River and lake, and thence down the Detroit River to Lake Erie.

The plan is to construct a canal directly across the State of Michigan from the eastern shore of Lake Michigan to either Detroit or Toledo. It is stated on trustworthy authority that preliminary surveys of several proposed routes for the canal have already been made, and the feasibility of the project has been vouched for by eminent engineers.

One of the plans under consideration is to tap Lake Michigan at a point near Michigan City or New Buffalo, and to run thence to Toledo. Another plan is to strike Lake Michigan at Benton Harbor, and thence run in a northeasterly direction to Detroit. Either of these canals would be about 180 miles long.

Among those to whom, it is stated, the plans for this project have been submitted, and who are said to have promised substantial support, are Nathaniel Thayer, the well-known capitalist of Boston; John D. Rockefeller, of New York; Gen. Thomas W. Palmer, of Detroit; C. P. Huntington, Frank Sturgis, of the New York Stock Exchange, A. Sturgis, of the Cordage Trust, and a number of others connected with various railway enterprises in the East.—*M'f'g. Gazette.*

A process devised for renovating old belting is claimed to strengthen the fibre to a remarkable degree. The belting is passed through a tank containing a solution of beeswax, borax, glue, starch and molasses in equal quantities, and the compound is then squeezed into the fibre by press rollers. The leather is immediately dried by being passed between two steam heated copper cylinders, and the renovation is complete.—*Invention.*



NEW PATTERN CUTTER. Will do work equal to any cutter on the market, both on paper machine and in finishing room. . . .

Paper Mill Machinery.

FOURDRINIER AND CYLINDER MACHINES.

Very Substantial and Convenient Designs, Embodying all Late Desirable Improvements.

IRON AND WOOD TUB BEATING ENGINES.

Wet Machines, Rag Cutters, Duplex and Triplex Stuff and Suction Pumps, Double Suction Water Pumps, Etc., Etc.

ESTABLISHED 1858.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.

DIRECTORY.

Cards under this heading will be charged for at the rate of $15 per annum for each card of three lines or less. Each additional line $5 extra.

Accountants.

PENNEY, JOHN, Public Accountant and Auditor, 156 Broadway, New York. Work done all over the country. Leading Publishers, Bankers, Merchants and Lawyers as references.

Architects.

BUSS, EDWARD A., Mill Engineer. Specialties: Paper Mill Work and Water Measurements. 88 Water st., Boston, Mass.

TOWER, ASHLEY B., successor to D. H. & A. B. Tower—Designs for Paper and Fibre Mills. Surveys and Plans for Mill Sites. Valuations of Mill Properties. Holyoke, Mass.

Dandy Roll, Fourdrinier & Other Wire Mfrs.

BROWN & SELLERS, mfrs. of Fourdrinier Wires, Wire Cloth; Dandy Rolls; Watermarking a specialty; Cylinder Molds, &c. Holyoke, Mass.

BUCHANAN, BOLT & CO., Patent Seamless Wove and Laid Dandy Rolls. Holyoke, Mass.

THE GLEESON WIRE CLOTH MFG. CO., manufacturers of Fourdrinier Wires; Cylinders and Dandy Rolls made and repaired; Cylinders covered at mill; Lettering and Watermarking promptly done. Harrison, N. J.

MALTBY, F. A., Troy, N. Y., Manufacturer of Fourdrinier, Cylinder and Washer Wires. Cylinder and Dandy Rolls recovered.

Jute Butt Brokers.

CABOT, RAY & CO., 81 Water st., N. Y.

Paper Bag and Box Machinery.

COTTON, W. W., & SON, 41 Centre st., N. Y.

Paper Clays.

BARBER, CHAS. B., 5 Beekman st., N. Y.

SERGEANT BROS., 132 Nassau st., N. Y.

Paper and Paper Makers' Supplies.

CLARK, CHARLES S., News Paper in Rolls for Perfecting Presses. Book, Plate and Chromo Papers. Potter Building, 38 Park row, N. Y.

HEWITT, C. B., & BROS., Building Papers. Printing, Wrapping, 48 Beekman st., N. Y.

HULBERT, H. C., & CO., 53 Beekman st., N. Y.

MURPHY, JOHN J., 47 John and 5 Dutch sts., N. Y.

Paper Makers' Felts and Jackets.

BOYNTON & WAGGONER, Manufacturers of Paper Makers' Felts and Jackets, East Aurora, N. Y.

Paper Makers' and Paper Stainers' Colors.

HUBER, J. M., Manufacturer and Importer of Carmine, Pulp Colors, Orange Mineral, Ultramarine, Paper Blue. 239 Front st., New York.

Paper Makers' Paste.

HART, HENRY L., Manufacturer of Paste for Paper Mills, Bookbinders, Paper Hangers, Printers, &c.; best in market. 10 Lock st., Buffalo, N. Y.; 207 N. Water st., Rochester, N. Y.

Paper Making Machinery.

GAGE, JOHN E., Automatic Steam Regulators for Dryers; Barry's patent. Waterford, N. Y.

Paper Manufacturers.

DIAMOND MILLS PAPER CO., White and Colored Tissues, Copying Paper, 44 Murray st., N. Y. Send for Samples of the new "Mikado" Tissue Paper.

JERSEY CITY PAPER CO., White and Colored Tissue and Manilla Wrapping, Cornelison ave. and Montgomery st., Jersey City, N. J.

ORIENT CARD AND PAPER CO., Pawtucket, R.I., Enameled Lithographic Papers, Plate Papers, Chromo Boards, Glazed Papers, Card Boards, Litho. and Varnish Label Papers.

ORRS & CO., Printing and Hanging, Mills at Troy. Roll Papers a Specialty. Office, 132 Nassau st., N. Y.

STOEVER, CHAS. M., & CO., Manufacturers of and Dealers in Book, News, Writing and Manilla Writing and Wrapping Papers. 320 Minor st., Philadelphia, Pa.

Printed Wrapping Paper.

O'KEEFE, THOS. A., Printed Wrapping, 48 and 50 Duane st., N. Y.

Rags, Paper and Paper Stock.

ATTERBURY BROS., 140 Nassau st., N. Y.

BOYLE, LUKE, 208 South Fifth ave., N. Y.

DARMSTADT & SCOTT, 257 Front st., N. Y.

ELLIOT, A. G., & CO., Paper and Paper Stock, 32 and 34 South Sixth st., Philadelphia, Pa.

FITZGERALD, J. M., 120 and 127 So. Fifth ave., N. Y.

FLYNN, MICHAEL, 61 Congress st., Brooklyn, N. Y.

HARLEY COMPANY, CHARLES, Cotton and Woolen Rags, 362 Third st., New York.

HILLS, GEO. F., 22, 24 & 26 Roosevelt st., New York.

HUGHES BROS., 60-66 N. Second st., Brooklyn, N. Y.

LIBMANN, JOSEPH, & CO., New Rags a Specialty. 191 and 193 South Fifth ave., N. Y.

LIVERPOOL MARINE STORE CO., Liverpool, England. L. M. S. Brand, Manilla, Rope and Star Brand.

LYON, JOHN H., & CO., 10 and 12 Reade st., N. Y.

LYON, J. W., & CO., 117 Leonard st., N. Y., Importers and Dealers in Paper and Woolen Manufacturers' Stock, Cotton and Wool Packing Waste, &c.

McGUIRE, MICHAEL, 100 and 102 Tenth ave., N. Y.

McQUADE, ARTHUR J., 535 & 537 E. 13th st., N. Y.

METZ, PHILIP, 49 Ann st., New York.

OVERTON, R. H., & SON, 104 Times Building, N. Y.

PIONEER PAPER STOCK CO., packers and graders of paper stock, 322 and 324 S. Desplaines st. and 106 and 107 Law ave., Chicago. PERRY KRUS, Pres't.

RAU, G., Times Building, Rooms 112 & 113, New York

SERGEANT BROS., 132 Nassau st., N. Y.

SMITH CO., THE JOHN M., 440 Water st., N. Y.

SIMMONS, JOHN, & SON, Wholesale Dealers in Paper and Rags, 28 and 30 Decatur st., Philadelphia.

WARD, OWEN, & SONS, 448 & 450 West 39th st., N. Y.

Screen Plate Manufacturers and Repairers.

HARDY & PINDER, Manufacturers of Patent Cast Metal Sectional Screen Plates, Fitchburg, Mass.

Sealing Wax.

BROWNE, M. C.—Especially for Paper Mills and Wholesale Paper Dealers, Holyoke, Mass.

Strawboards.

AMERICAN STRAWBOARD CO., 102, 104 and 106 Wooster st., N. Y.

Toilet Paper Manufacturers.

SWIFT, M. A., & SON, Sheet and Roll Toilet. Write for Samples and Prices. Correspondence solicited. 15 Exchange st., Boston, Mass.

Waxed Papers.

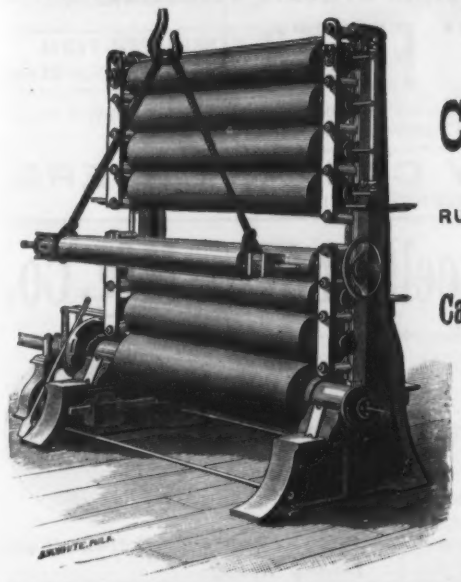
THE HAMMERSCHLAG MFG. CO., Manufacturers of Waxed Paper, 222, 224 and 226 Greenwich st., New York.

THE SPARKS MFG. CO., White and Manilla Tissue and Waxed Paper. Hamburg, Sussex Co., N. J. New York Office, 105 Hudson st.

Wood Pulp Grindstones.

WOOD, WALTER R., 17 Broadway, New York. "Acme" English Wood Pulp Grindstones.

LOBDELL CAR WHEEL COMPANY,



Wilmington, Del., U. S. A.,

MANUFACTURERS OF

CHILLED ROLLS

For Paper Machines,

RUBBER, BRASS, COPPER, FLOUR, OIL AND INK MILLS, ETC.

Calenders Furnished Complete,

WITH PATENT OPEN FACE HOUSINGS so arranged that any roll can be removed without disturbing the others in the stack.

ROLLS SUPPLIED FINISHED OR TURNED FOR GRINDING.

ROLLS BORED FOR STEAM OR CAST HOLLOW.

ROLLS OF ALL KINDS REGROUND.

LEVIATHAN BELTING.

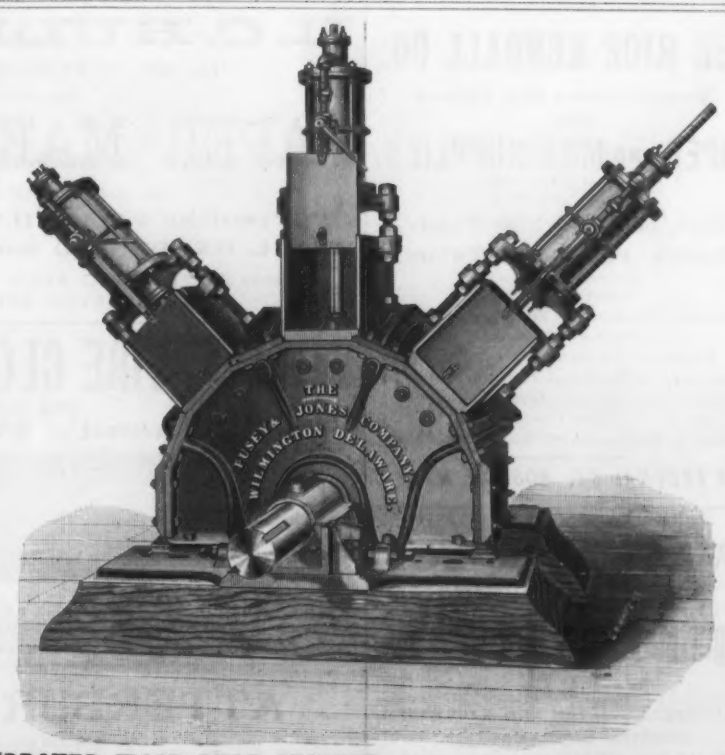
Unsurpassed for Strength, Durability and Traction Power.

Made any length, width and strength.
Guaranteed to run straight. Even throughout.
Unaffected by heat, steam or water.

BELTS FOR MAIN DRIVING AND WORK OF A HEAVY NATURE A SPECIALTY.

MAIN BELTING COMPANY,

SOLE MANUFACTURER,
1219-1235 Carpenter Street, Philadelphia.
248 Randolph Street, Chicago.
120 Pearl Street, Boston.



IMPROVED WOOD PULP GRINDER. . . . BUILT BY . . . THE PUSEY & JONES CO., Wilmington, Del.

—) *CORRESPONDENCE SOLICITED.* (—

AMOS H. HALL'S

Cedar Vat & Tank Factory,

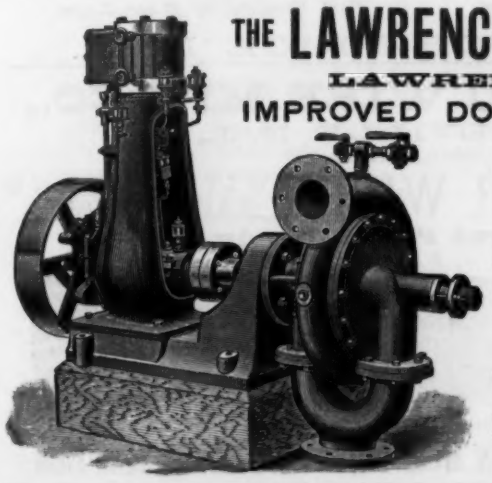
North Second Street, above Cambria.
PHILADELPHIA, PA.

ESTIMATES PROMPTLY FURNISHED.

ESTIMATES PROMPTLY FURNISHED.

Drainers, Stuff Chests, Broken Tubs, Straw Kettles, Boiling and Size Tubs, Water Tanks, &c.,
FOR PAPER MANUFACTURERS.

Down-Town Office: 140 Chestnut St., cor. Second.



THE LAWRENCE MACHINE CO.

LAWRENCE, MASS.

IMPROVED DOUBLE SUCTION

CENTRIFUGAL PUMPS,

In IRON, BRASS or BRONZE.

VERTICAL

HIGH SPEED STEAM ENGINES,

Sizes 2 to 25 H. P.

Bronze Valves and Special Fittings for Sulphite Pulp and Paper Mills.

Contractors for Special Machinery.

ALSO

New Improved Side Suction Pumps

Write for Catalogue D.

We are now prepared to furnish

PENINSULA AND NEW CASTLE

Wood Pulp Grindstones,

SUITABLE FOR ANY STYLE OF GRINDER,

On short notice. Sure to give satisfaction. Will pay you to get our prices.

THE CLEVELAND STONE CO.,

283 Front Street, New York.
Tacoma Building, Chicago.
Sleeper Street, South Boston.

CLEVELAND, OHIO.

CHENEY BIGELOW WIRE WORKS,

SPRINGFIELD, MASS.

Cylinder Molds, Fourdrinier Wires,

DANDY ROLLS,

BRASS, COPPER AND IRON WIRE CLOTH.

ESTABLISHED 1840.

GEO. J. BURKHARDT'S SONS'

CEDAR TANK FACTORY,

2831 TO 2839 NORTH BROAD ST.,
Philadelphia.

DE WITT-ESTEY WIRE CLOTH WORKS,

NEWARK, - - OHIO.

NEW YORK STORE:
W. S. ESTEY,
71 Fulton Street.

FOURDRINIER WIRES.

Brass and Copper Wire Cloth of Every Description.

BEST QUALITY,
HEAVY GRADE,
PURE SILK EDGES.

Brass Wire Cloth

For COVERING CYLINDERS and WASHERS.

Dandy Rolls and Cylinders Made and Repaired.

THE IMPROVED

JENKINS BROS. VALVES

Have the Keyed Stuffing Box and Disk Removing Locknut.

NONE GENUINE unless they bear our TRADE MARK.

Cost no more than the Imitations. Send for Prices and Discounts.

JENKINS BROS.,

71 John Street, New York. | 21 N. Fifth St., Philadelphia.
105 Milk Street, Boston. | 31 N. Canal St., Chicago.

JEFFREY CHAIN BELTING.

—ALSO—

Malleable, Steel, Cable and Special Chain for Elevators and Conveyors.

SEND FOR ILLUSTRATED CATALOGUE.

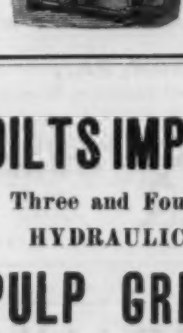
THE JEFFREY MFG. CO.,

COLUMBUS, OHIO.

New York Branch, 163 Washington Street.

SEND FOR THIS BOOK
FREE ON APPLICATION.
THE BABCOCK & WILCOX CO
30 CORTLANDT ST. N.Y.
BRANCH OFFICES
BOSTON, MASS. 8 OLIVER ST.
PHILADELPHIA, PA. 32 N. 5TH ST.
PITTSBURGH, PA. 408 LEWIS BLOCK.
CLEVELAND, O. 412 PERRY-PAYNE BG
CHICAGO, ILL. 45 S. JEFFERSON ST.
MINNEAPOLIS, MINN. 604 CORN EX.
NEW ORLEANS, LA. 57 CARONDELET ST.
WATER TUBE
STEAM BOILERS
MANUFACTORIES IN UNITED STATES, SCOTLAND, FRANCE, GERMANY & AUSTRIA.

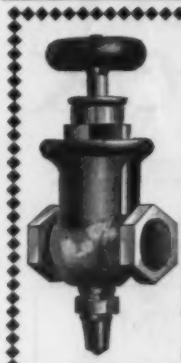
AWARDED THE GRAND PRIZE AT LATE PARIS EXPOSITION.



The Vacuum Feed Water Heater and Purifier, the Webster Separator, and Williames Vacuum System of Steam Heating, are sold by us under guarantee to effect a saving in fuel and water, which is fully set forth in certain catalogues that we send upon application. . . . . No. 6.

WARREN WEBSTER & CO.,

NEW YORK—136 Liberty Street.
CHICAGO—Monadnock Building.
Camden, N. J.



THE
Curtis
Pressure
Regulator

for Steam, Water, and Air, is a regulator which is unequalled for simplicity, efficiency, and reliability.

These regulators have now been in use for twelve years, and have established a reputation second to none.

The use of this regulator means decreased expenses.

Manufactured by the

D'ESTE & SEELEY CO.

29 to 33 Haverhill St., Boston
New York: 109 Liberty St.
Chicago: 218 Lake St.

CHAS. S. BARTON, President and Treasurer. LEWIS C. STONE, Manager.

RICE, BARTON & FALES MACHINE AND IRON CO.

(At Old Stand of Rice, Barton & Co.),

WORCESTER, MASS.,

—MANUFACTURERS OF—

PAPER MACHINERY,

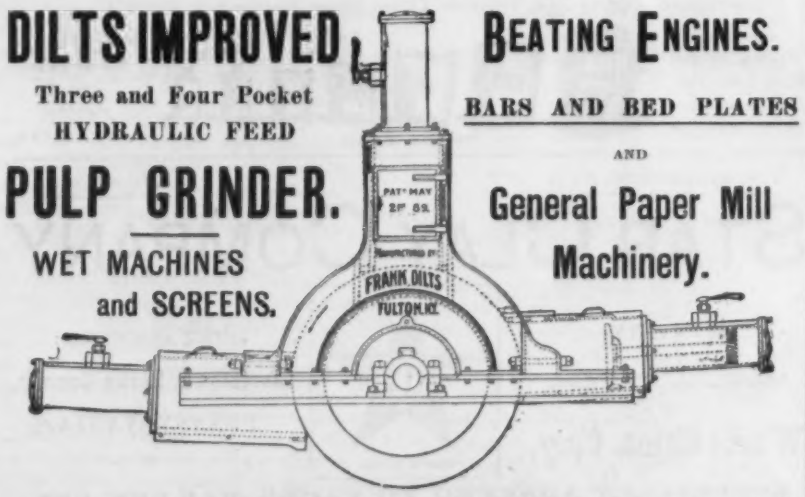
HILL'S PATENT SQUARE AND DIAGONAL CUTTERS,
Iron and Brass Castings, Chilled Iron and Paper Calender Rolls, Rag Engines
Rag Cutters, Steam Pressure Regulators, &c.
HYDRAULIC PRESSES, FROM 5 TO 14 INCH PISTON.

DILTS IMPROVED

Three and Four Pocket
HYDRAULIC FEED

PULP GRINDER.

WET MACHINES and SCREENS.



BEATING ENGINES.

BARS AND BED PLATES

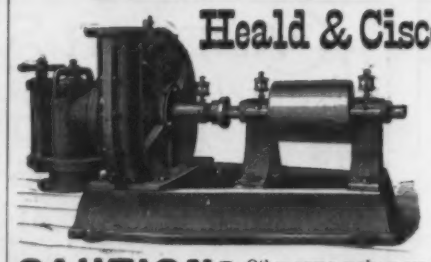
AND

General Paper Mill Machinery.

MANUFACTURED BY **DILTS MACHINE WORKS, Fulton, N. Y.**

THE OLD RELIABLE

Heald & Cisco Centrifugal Pump.



MORE OF THEM USED BY PAPER MAKERS THAN OF ALL OTHER KINDS COMBINED.

More than EIGHTEEN Thousand in Use.

CAUTION!—Other pump makers are advertising their wares as the "Baldwinsville" Centrifugal Pump. This claim is fraudulent and intended to deceive. We are the only manufacturers of Centrifugal Pumps in Baldwinsville, and we warn all purchasers against parties falsely claiming otherwise.

MORRIS MACHINE WORKS (formerly Heald & Morris), Baldwinsville, N. Y., U. S. A.

HENION & HUBBELL, Agents, 55 & 57 North Clinton Street, Chicago, Ill.

THE RICE KENDALL CO.,

Manufacturers and Dealers
IN
PAPER AND MILL SUPPLIES.

FULL LINE OF
News, Book and Fine Papers, Manilla Papers and Twines.

AGENTS FOR THE
American "Excelsior" Felts, Piece Felting and Jacketing,
Crocker's American Matrix Paper,
Crane & Co.'s Bond and Parchment Papers,
Crane Bros.' Ledger, Japanese and All Linen Papers,
Tileston & Hollingsworth Co.'s Plate Papers.

91 FEDERAL ST. BOSTON, MASS.

WATSON & CO.,

IMPORTERS OF AND DEALERS IN
Paper Manufacturers' Supplies.

AGENTS FOR
WHITEHEAD'S FELTS AND JACKETING,
CURTIUS' ULTRAMARINE,
EX. EX. EX. HEAVY DRYER CANVAS.

Vanderbilt Building, 132 Nassau Street,
NEW YORK.

C. A. CHENEY,

—IMPORTER OF—
PAPER STOCK AND SIZING,
58 & 60 Federal Street,
BOSTON.

E. HATTON & Co.,

—IMPORTERS OF—
Rags, Jute, Paper Stock
—AND—
WOOD PULP,
3 to 9 Beekman St. (S. W. Corner of Nassau), New York.

R. H. OVERTON & SON,

Times Building. Room 104, New York,
IMPORTERS, PACKERS AND DEALERS IN
Paper Makers' Supplies

PACKING WAREHOUSE,
246 BEDFORD AVENUE, BROOKLYN.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN.

—Thorough inspection.—
Insurance against loss or damage to property, also against loss of life and injury by Steam Boiler Explosions

General Agents.	*Offices.*
THEO. H. BABCOCK,	New York City, 235 Broadway.
CORBIN & GOODRICH,	Philadelphia, 432 Walnut Street.
LAWFORD & McKIM,	Baltimore, Md., 22 So. Halliday St.
C. E. ROBERTS,	Boston, Mass., 35 Pemberton Sq.
H. D. P. BIGELOW,	Providence, R. I., 29 Weybosset St.
C. C. GARDINER,	Chicago, Ill., 112 Quincy Street.
L. B. PERKINS,	St. Louis, Mo., 404 Market Street
W. G. LINEBURGH & SON,	Hartford, 218 Main Street.
A. S. FERRY,	Bridgeport, 1 Sanford Building.
MANN & WILSON,	Cleveland, 208 Superior Street.
W. S. HASTIE & SON,	San Francisco, 306 Sansome St.
DOLLARS & McGREW,	Charleston, S. C., 44 Broad Street.
R. F. MANLY,	Denver, Col., 423 to 426 Mining Exchange Building.
	Birmingham, Ala., 1901 First Ave.

FELIX SALOMON & CO.,

BENNETT BUILDING,
Nassau, Ann and Fulton Sts., New York,
IMPORTERS OF AND DEALERS IN
ALL GRADES OF
PAPER STOCK
AND
WOOD PULP.

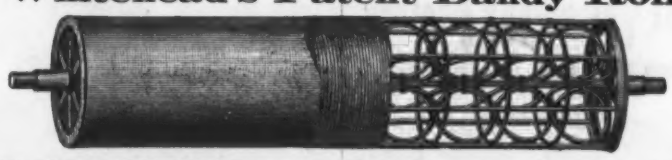
H. C. HULBERT & CO.

No. 53 BEEKMAN STREET, NEW YORK,
IMPORTERS OF AND DEALERS IN
PAPER MAKERS' SUPPLIES.

Sole Agents for over Twenty-five Years for the sale of
"STUBBINS VALE MILLS" FELTS and JACKETING,
PEARL HARDENING and "BERGER" ULTRAMARINE.
Agents for "REFINED ALUM" for Sizing and Bleaching.
CANVAS DRYER FELTS, Heaviest and Best, in all Widths.

DeWITT WIRE CLOTH CO.

82 Reade St., New York,
703 Market St., Philadelphia,
SOLE MANUFACTURERS OF
Whitehead's Patent Dandy Roll.



Also Manufacture FOURDRINIER and CYLINDER WIRES. Cylinders and Dandy Rolls made and repaired. Lettering and Designing on Dandy Rolls executed neatly and promptly. Dealers in all kinds of Paper Mill Supplies.

ATTERBURY BROTHERS,

IMPORTERS OF AND DEALERS IN
Cotton and Linen Rags, Flax Waste, Bagging,
AND ALL KINDS OF PAPER STOCK.
MORSE BUILDING, 140 NASSAU STREET, NEW YORK.

FIDELITY PAPER CO.,

902 BENNETT BUILDING,
97-99 Nassau Street, New York.
DRYER FELTS.
These Felts are running on over 500 Machines. Send for prices by yard or pound.

NATRONA POROUS ALUM,

FOR PAPER MAKERS' USE.
The Strongest and Purest Alum made and the only Alum made from Kryolith Alumina.
PENNSYLVANIA SALT MFG. CO.,
W. M. ELLICOTT & SONS, Baltimore, Md.
MOREY & CO., Boston, Mass.,
GEO. H. EMBREE, New York.
} Agents.
115 CHESTNUT STREET,
PHILADELPHIA, PA.

PAINT
for Iron Work,
for Brick Work,
for Wood Work,
for all around
THE PAPER MILL.

HARRISON BROS. & CO.,
PHILADELPHIA,
CINCINNATI,
NEW ORLEANS,
NEW YORK.

STANIAR & LAFFEY,

MANUFACTURERS OF
FOURDRINIER WIRES,
CYLINDER MOLDS,
DANDY ROLLS,
Brass, Copper and Iron Wire Cloth,
Nos. 11-19 PASSAIC AVENUE, EAST NEWARK, N. J.

JOHN H. LYON & CO.,

—IMPORTERS AND DEALERS IN ALL GRADES OF—
PAPER STOCK,
And Dealers and Packers of all Grades of
WOOLENS FOR SHODDY AND FLOCK PURPOSES.
Office: 10 & 12 Reade Street,
WAREHOUSE: 35 PARK STREET, NEW YORK.

CAMERON STEAM PUMP

SIMPLE, RELIABLE, COMPACT, DURABLE.

NO OUTSIDE VALVE GEAR.
ADAPTED FOR ALL PURPOSES.
THE A·S·CAMERON STEAM PUMP WORKS
FOOT OF EAST 23d STREET, NEW YORK.

BULKLEY, DUNTON & CO.,

Nos. 75 AND 77 DUANE STREET, NEW YORK,
"EXCELSIOR" FELTS PIECE FELTING and JACKETING
For Economy, Durability and Good Results they are Unequaled. Long Established and Well Known. A Trial is Solicited from Manufacturers not already Using them.
EXTRA HEAVY CANVAS DRYERS.
SATISFACTION GUARANTEED. SEND FOR PRICE LIST.

Wm. Cabble Excelsior Wire Mfg. Co.

No. 43 Fulton Street,
NEW YORK.
MANUFACTURERS OF
Superior Fourdrinier Wires,
Cylinder Wires,
Brass, Copper and Iron Wire Cloth of every description.
Brass, Copper and Iron Wire,
Dandy Rolls,
Cylinder Molds,
Best Quality of Wire Rope.
WRITE FOR PRICE LIST.

EASTWOOD WIRE MFG. CO.,

BELLEVILLE, N. J.,
—MANUFACTURERS OF—
FOURDRINIER WIRES WITH PATENT SAFETY EDGE.
Improved Patent Dandy.

Patented August 12, 1884.
BRASS, COPPER AND IRON WIRE CLOTH OF EVERY DESCRIPTION.
SEND FOR SAMPLES AND PRICES.

ESTABLISHED 1826.
LEWY BROTHERS,

German and Russian Linen Rag Packers,
BERLIN and KOENIGSBERG, Germany.
MORSE BUILDING, No. 140 Nassau St., New York.

RODNEY HUNT MACHINE CO

Engineers Machinists Iron and Brass Founders
IRON FLUMES & PENSTOCKS. TURBINE WATER WHEELS. VERTICAL and HORIZONTAL
CLOTH HEAD GATE GEARING, REGULATORS and everything pertaining to
BOSTON OFFICE, 70 KILBY ST. CATALOGUE FREE FINISHING MACHINERY WATER WHEELS & MILL WORK
INCLUDING Rotary Fulling Mills, Cloth Washers, Dolly Washers for Hosiery Goods, Crank Fulling Mills, Wool Washers, Dusters, Gigs, Dye Tubs, Blue Vats, etc. ORANGE, MASS.
ALSO ROTARY FIRE PUMPS UNDERWRITERS SIZES.

ROLLS OF ALL KINDS GROUND BY "POOLE" PROCESS.

Machinery and Machinery CASTINGS OF ALL KINDS.
Pattern Making and Job Work Desired.
PAPER DRYERS.
PAPER AND PULP MACHINERY.
SEND FOR GEAR CATALOGUE.
We are fully equipped to build light and heavy SPECIAL MACHINERY
And would be pleased to furnish estimates.
THE TOWNSEND FURNACE AND MACHINE SHOP,
RUFUS K. TOWNSEND, Proprietor. ALBANY, N. Y.

C. K. WILLIAMS & CO., EASTON, PA.,

Miners and Manufacturers of Mineral Pulp, American Talc, Agalite Royal Hardening, Keystone, Imported and American Clays, Yellow and Chrome Ochres, Venetian Reds, Red Oxides, &c.
PUT UP IN PACKAGES TO SUIT THE CONVENIENCE OF PAPER MAKERS.

TRADE MARK.
ESPECIALLY ADAPTED FOR *PAPER MAKERS' USE.*

T. P. SHERBORNE, Jr. J. B. WILSON.

STAR CLAY COMPANY

MINERS AND MANUFACTURERS OF
White China Clay.

TRADE MARK.

OFFICE AND WORKS:
Mertztown, Berks County,
PENNSYLVANIA.

ESPECIALLY ADAPTED TO PAPER MAKERS' USE.

LOCKWOOD PRESS, 126 and 128 Duane Street, cor. Church, New York.